HYGEIA

The HEALTH MAGAZINE

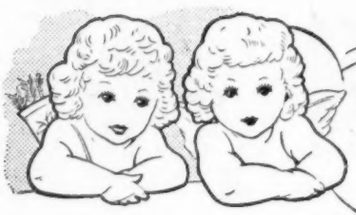
PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION

Many precious lives are saved by the knowledge gained through animal experimentation

THE CHALLENGE OF MEDICINE

A DOCTOR LOOKS AT HIS PATIENTS

June 1935 25 Cents



HEAVENLY MOMENTS

Life begins at 4

"... and, Dolly dear, I'll give you some dee-lish-us creamed tuna, just like Mother made for me!"

Tiny, growing bodies—how they need rich food values as found in tuna! And, how tiny, hungry palates *love* the delicate, tender deliciousness of these two famous brands of highest quality tuna! Serve it several times a week ... there are many easy, different ways of preparing it...all delicious! This finer tuna provides "quickly available food energy" that growing children need. Contains Vitamins "A" and "D," potassium, phosphorus and iodine, that effective preventive of nutritional goiter.

for 22 years America's favorite, because only the delicate, tender, delicious light meat is packed.

ACCEPTED
AMERICAN MEDICAL ASSN.
Committee on Foods

Free recipes "86 New Proven Tuna Recipes," write to Van Camp Sea Food Co., Inc., Terminal Island, Calif., Dept. C (for Chicken of the Sea booklet), Dept. W (for White Star Tuna booklet).

A PURE FOOD, HONESTLY ADVERTISED

The Seal of Acceptance of the Committee on Foods of the American Medical Association is your best guarantee that the claims of quality for any product are correct and that the advertising for it is truthful. Look for this seal on every food you buy. White Star Tuna and Chicken of the Sea Brand Tuna have this acceptance.

PUBLISHER'S STATEMENT OF CIRCULATION. This is to certify that the average circulation per issue of HYGEIA for the six months' period July 1st to and including December 31st, 1934, was as follows: Copies sold, 71,923; Exchanges, advertisers' checking copies, agents, samples, 6,077; Total 78,000. American Medical Association, Chicago, Ill.

HYGEIA•

JUNE 1935

THE HEALTH MAGAZINE

Published by the American Medical Association
Edited by Morris Fishbein, M.D.

Volume 13
Number 6

WE PRESENT•

HEALTH SUPERSTITIONS—AN EDITORIAL.....Page 492

THE CHALLENGE OF MEDICINE.....Page 494
in which Dr. Wingate M. Johnson throws down the gauntlet, challenging the world to match the spirit of the medical profession. Of Dr. Johnson's many contributions to Hygeia, the most recently published were "The New Generation" and "Want to Be a Doctor?"

A DOCTOR LOOKS AT HIS PATIENTS.....Page 496
and "from the kindly shadow of anonymity," under the pen name of Donald Whyte, tells what he sees.

A MAN'S BEST FRIENDS.....Page 501
a story by Lucretia Penny, well known to Hygeia readers as the author of the "Aunt Paisley" stories, one of which, "Dr. George Prescribes," appeared in the May Hygeia.

INFANCY: A FRONTIER OF SCIENCE.....Page 503
is discussed by Orvis C. Irwin of the Iowa Child Research Station, University of Iowa.

ROBERT KOCH.....Page 507
a brief illustrated biography of a singularly great doctor of medicine. This is the third in a series in which Adolph Beilin depicts the lives of pioneer scientists who helped to make modern medicine possible.

COUNTRY DOC.....Page 508
a stirring story by Homer Croy, author of "West of the Water Tower," "Headed for Hollywood" and "They Had to See Paris" and contributor to magazines, syndicates and radio programs.

AVIATION—FROM THE MEDICAL POINT OF VIEW.....Page 514
discussed by Dr. L. H. Bauer, who describes the physical examinations of prospective aviators, the qualifications of the pilot, the results obtained by careful inspection and continued supervision, and the growth of "aviation medicine." Dr. Bauer was formerly medical director of the Aeronautics Branch, U. S. Department of Commerce.

THE DOCTOR'S SCOTLAND YARD: INTRODUCTION.....Page 516
in which Dr. Robert A. Kilduffe turns sleuth and tracks some strange criminals to their "hideouts." In this chapter the reader is introduced to Inspector Carey, Dr. Robert Trebor and Gavin Holt, a writer, who will be met in the subsequent chapters of this unusual series.

MEDICAL MEN WHO HAVE LOVED MUSIC.....Page 520
an article by Robert Pollak, composer and critic, whose studies on "Occupational Diseases of Musicians" appeared this year in the January and February issues of Hygeia.

WHY THE BABY HAS ECZEMA. II.....Page 524
one of four articles in which Dr. Dennis Kelly and Myrtle Meyer Eldred dispel the mysteries that surround a commonplace disease of infancy and childhood.

WHY WORRY?.....Page 527
a question adequately answered by Dr. John P. Koehler, clinical professor of public health, Marquette University School of Medicine, who tells when and when not to worry about health.

THE BLACK WIDOW.....Page 530
in which Commander W. H. Michael, Medical Corps, U. S. Navy, presents an interview between a physician and a patient, the victim of that dangerous spider, Latrodectus mactans, the Black Widow.

EAVESDROPPING ON THE DOCTOR.....Page 532
a play in three acts by Dr. Henry F. Stoll, in which the reader "listens in" on some interesting consultations.

EYE DISEASES IN ADVANCED AGE.....Page 535
part 1 of the eleventh chapter in Dr. Hyman Cohen's series, "The Eye Book."

VINCENT'S INFECTION, OR TRENCH MOUTH.....Page 540
the sixth chapter in the series, "These Teeth of Mine," by David W. McLean, D.D.S.

A HOUSEWIFE LOOKS AT THE COMMITTEE ON FOODS....Page 542
and discusses the decisions of this American Medical Association group in regard to dessert powders. Doris W. McCray, who writes this series of articles, is a food consultant.

CHEMISTS, DYES AND DOCTORS.....Page 546
in which Dr. Carey P. McCord describes the medicinal uses to which various dyes have been put and tells of the steps leading to the discovery of the usefulness of dyes as therapeutic and diagnostic aids. Dr. McCord is associate professor of preventive medicine, University of Cincinnati College of Medicine.

"IT WAS SUCH A VERY NICE DAY".....Page 550
a delightful story for children, written and illustrated by Jo Elizabeth Michel.

A DAY IN THE LIFE OF BERTIE BEAR.....Page 554
by John Dukes McKee.

COVER DESIGN
by Jo Elizabeth Michel.

RADIO ANNOUNCEMENTS.....Page 502

HEALTH PURSUITS IN PICTURES.....Pages 513; 552

FORECAST FOR JULY.....Page 523

CARTOON BY BO BROWN.....Page 549

SCHOOL AND HEALTH DEPARTMENT.....Page 555

NEW BOOKS ON HEALTH.....Page 560

QUESTIONS AND ANSWERS.....Page 561

HYGEIA, The Health Magazine, is published monthly by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. Yearly subscription price, $2.50; for foreign postage add 75 cents. Volume 13, Number 6. Entered as second-class matter March 21, 1923, at the post-office at Chicago, Ill., under the Acts of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1,103, Act of October 3, 1917, authorized March 21, 1923.

Copyright, 1935, by the American Medical Association. All rights reserved.

JUNE 1935

Health Superstitions

THE STRANGE notions that many people have relative to the human body and its health are largely inherited from the time when it was believed that disease resulted from an invasion of the body by a demon and that it was necessary to conjure the evil spirit out of the body to cause a return of health. For example, it was thought that epilepsy or "falling sickness" was caused by a spirit who got inside the skull and that in order to relieve the condition it was necessary to get the demon out. Primitive men bored holes in the skull with a trephine. The skulls of such human beings may be found in the caves of the Mound Builders, indicating that the operation relieved the patient not only of epilepsy but of all the other troubles that disturb mankind.

WHEN your ear burns, some people believe it is a sign that some one is talking about you, favorably if it is the right ear and unfavorably if it is the left. When your nose itches, it is a sign that you will have a visitor. If you have what are called "cold shivers" it is a sign that some one is walking over the spot that will some day be your grave. A blister or sore spot on the tongue is a sign that you have been prevaricating. These are superstitions of the most simple type, because science can explain every one of these occurrences by actual changes that have taken place in the tissues. For instance, when your ears burn it is merely a sign that for some reason the blood vessels have dilated and more blood has gone into the ears, a condition the same as blushing. When the nose itches, it is due either to some local irritant or to some sensitivity to a protein substance. When you have a blister on your tongue, it may be due to a burn, an irritation, an infection or a change brought about through the nervous system, but telling lies has nothing whatever to do with it.

Among the most amusing of these notions is the expression used when a person sneezes. The English say "God bless you!" The Germans say "Gesundheit." Every other language has a similar phrase. The superstition arose from the fact that the ancients thought that sneezing gave opportunity to the vital spirit to escape from the body, and that they could prevent such an escape by uttering a blessing.

Then there is the superstition that it is possible to transfer a human disease to some animal or some inanimate object and thus to get rid of it. For instance, there is the idea that one may be rid of warts by tying as many knots in a string as there are warts on the hands and then burying the string at midnight underneath an old oak tree. There used to be an idea that a child could be cured of whooping cough if he coughed into the mouth of a live fish, which was then put back into the water. All these strange notions represent an attempt to transfer the disease by magic from the person who is troubled to some other victim. Modern quackery is probably much the same thing, but it achieves its results by giving an impression of science rather than by appealing to outworn notions regarding spirits.

MANY of the superstitions developed by human beings are protective superstitions. There is, for example, the idea that if a baby is tickled before his first year, he will stammer. There is not the slightest reason for believing that such tickling has anything to do with stammering, but the reason is a good one to stop unnecessary tickling. There is an idea that a thunder storm makes milk sour. A thunder storm has nothing to do with the souring of milk, for this condition is brought about by the development of germs within the milk.

Then there are innumerable superstitions which get their results by turning the attention away from some annoying condition to something else. It is said that headache can be relieved by pressing the roof of the mouth with the thumb; that hiccoughs may be stopped by counting slowly up to 100; that tying a string around the little toe on the right foot will stop a toothache on the left side of the jaw; that copper wire placed around the waist will pre-

EDITORIAL

vent rheumatic pains, and that the same kind of pains can be cured by wearing an iron ring on the finger. All these superstitions are concerned with turning the attention away from the pain that is prominent and putting it on some other object. In the same way, all sorts of quacks attempt to cure rheumatism by pushing buttons in the spine, by pulling legs, by twisting feet and by seating the rheumatic subject where he can see electric sparks pass between two electrodes.

Sometimes in an earlier day, men protected themselves against infectious diseases by their superstitions when they did not have any real knowledge of the nature of the infection. There is, for example, the idea that to scratch the finger with a rusty nail is dangerous. Now a good, clean, rusty nail is no more dangerous than a good, clean nail that is not rusty. There is, however, the likelihood that a rusty nail will be found in manure or in the dirt, where it is likely to be contaminated with germs of tetanus, or lockjaw. For that reason it is probably more dangerous to scratch the finger with a rusty nail than with any other.

THERE is the idea that sleeping in the night air will cause malaria. We know today that malaria is an infection transferred from one human being to another by mosquitoes and that the mosquitoes are more likely to bite the human being who is sleeping outdoors in the night air without protection than the one who sleeps indoors with protection against mosquitoes. Obviously that sort of superstition is a protection to the person who believes it without any real understanding as to why he is being protected.

Of the same type is the notion that a pimple will never get well if you pick it. This is a protection, because picking a pimple keeps it open and prevents it from healing. It also prevents the possibility of conveying germs from unclean fingers to the open wound.

The number of superstitions of this kind is tremendous. One might go on and on for many hours, but enough has been said to show that they depend on belief rather than on knowledge. Particularly interesting is the fact that the right is always supposed to be good and beneficial and that the left is always supposed to be bad. Thus right means dextral and left sinistral, from which comes the term sinister, meaning dangerous or forbidding. Consequently, if you are superstitious, when your right ear itches you assume that some one is speaking well of you, but itching of the left ear will mean an unfavorable comment.

The left-handed baseball pitcher is supposed to be a peculiar individual with strange ideas, invariably a wild man. Actually a left-handed baseball pitcher with enough control is in many instances superior to the right-hander because more than 90 per cent of people are right-handed and the left-handed pitcher comes at them from the wrong side. The words "to do right" will indicate how firmly established is this notion that right is always the good. Here is a moral superstition based on a physical condition but without any really scientific background.

Another type of superstition which has from time to time been considered scientifically is the idea that it is possible to read from the lines of the face or the hands something of the character of the individual concerned. All these notions are based on symbolism. In the middle ages it was thought that a man with a sharp-tipped nose, like that of a dog, would have a snarling character. A man with a long hooked nose, like that of an eagle, was said to have a noble though grasping nature. It was believed that when people resembled certain animals they would have the characteristics of these animals. For this reason, there is still the belief that coarse hair is a sign that a person is thick witted or brutal and that fine hair is a sign of gentility and mildness.

A short, up-turned nose in a woman is supposed to be a sign of a frivolous and disdainful character, and a long nose which points downward is believed to indicate a prying and curious disposition.

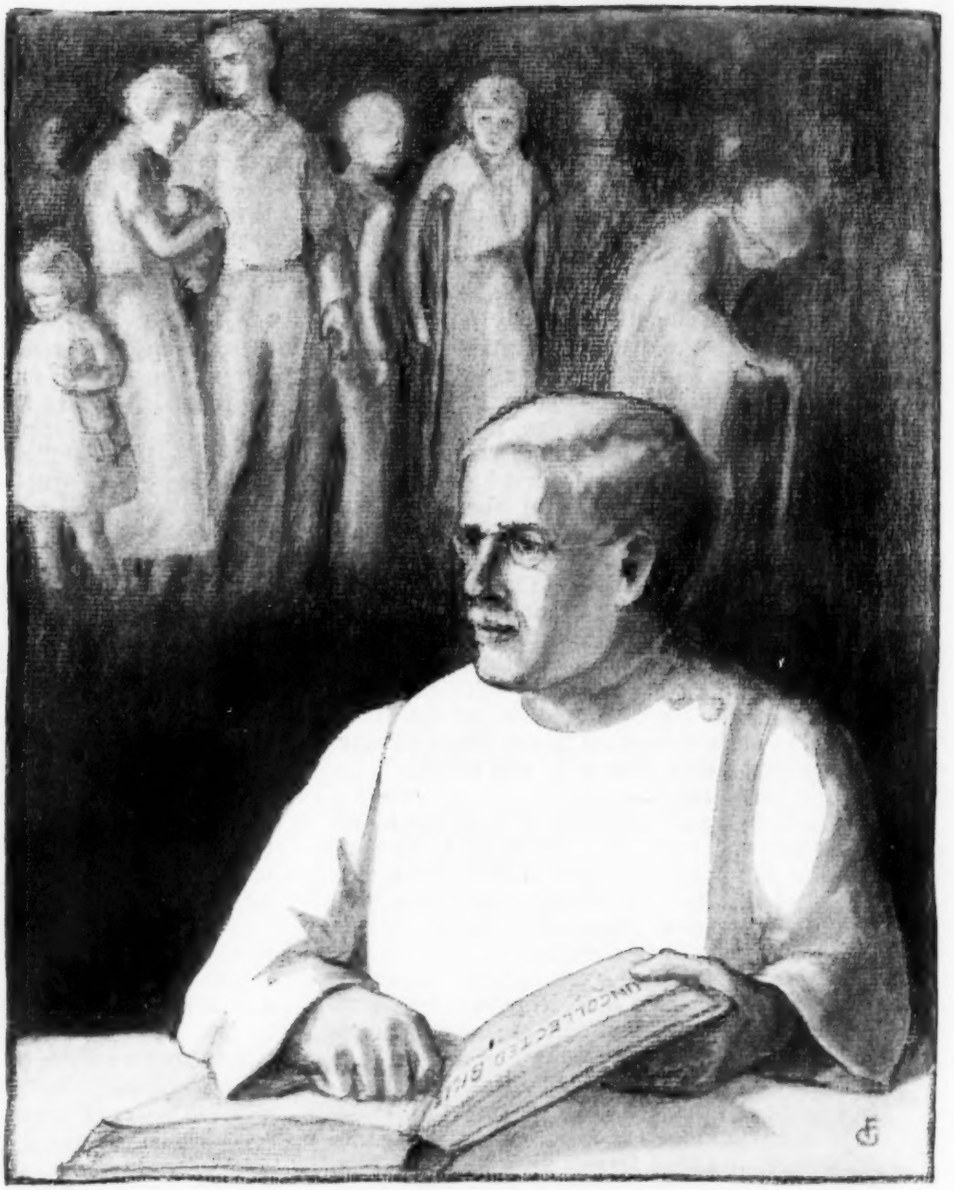
WE ALL talk of highbrows and lowbrows, but the height of the forehead is not really any indication of the amount of gray matter in the brain behind it.

While the points that have been mentioned are examples of pure superstition, we still recognize the fact that a great deal can be told about a person's character from the expression on his face. There are certain faces which are invariably gloomy and others which are cheerful. There is the vacant look of the idiot or imbecile, and the alert carriage and glance of the "go-getter." Yet even these observations have not been reduced to a science.

The Challenge of Medicine

By

WINGATE M. JOHNSON



WHILE OUR BUSINESS LEADERS WERE ENDEAVORING TO SAVE THEIR OWN SKINS, EVEN AT THE EXPENSE OF THOSE WHO TRUSTED THEM, DOCTORS WERE CALMLY GOING ON THEIR WAY, MINISTERING TO SUFFERING HUMANITY, EVEN IF SAID SUFFERING HUMANITY HAD NOT A BAUBLE FOR RECOMPENSE.

IT IS but natural that a man should gradually come to think of life in terms of his occupation. After thirty years spent in the practice of medicine, it is as natural to think of the world about me in relation to my chosen profession as it is to think of my wife and children in considering any change in plans. This accounts for the fact that, during the revolutionary changes through which our country in common with the whole world has passed in the last four years, it seems to me that medicine has had less to apologize for, and more to be proud of, than any other profession or occupation in the world. It is with no idea of making odious comparisons but only with the just pride a loyal son of Aesculapius can and should feel in his calling that on behalf of my profession I am issuing a challenge to the world to match its spirit. Without disparaging any of the other professions, let us see wherein the medical profession has won the right to challenge the world to follow its lead.

FIRST, by its altruism. While our business leaders were endeavoring to save their own skins, even at the expense of those who had trusted them, doctors were calmly going on their way, ministering to suffering humanity, even if said suffering humanity had not a bauble for recompense. While bankers were refusing to lend a dollar to men of the highest character who could not give the most liquid collateral,

and while manufacturers were discharging old and faithful employees and cutting the wages of others to the bone in order to continue dividends and bonuses as long as possible, doctors were carrying on their books families that had become unable to pay for their services; and to the credit of most of the profession, they did this in such a way that the worthy families were not made to feel pauperized. It is not to the credit of doctors as business men that for the four years following the great depression they have done from 40 to 90 per cent of their work without pay; but does it not speak well for their altruism?

Another proof of the altruistic spirit of the profession is that it is the only one whose members are constantly working themselves out of a job. A single example of this is the virtual extermination of typhoid, by vaccination and sanitation, which has cost the average practitioner thousands of dollars every year.

WHILE the rest of the world was bemoaning the good old days of Coolidge prosperity and refusing to be comforted the doctors kept their faces steadfastly to the future. There was no break in the steadily decreasing mortality from infectious diseases or in the constantly lengthening life span, which has increased by fifteen years since the beginning of this century. Research work in medical laboratories has gone steadily forward, and the new discoveries in diagnosis and treatment are being eagerly utilized by the men in active practice.

Still another characteristic of the profession that might well be emulated is its contempt for mere "authority" and its passion for facts. The creed of the profession might almost be summed up in the three principles acquired by Oliver Wendell Holmes in Paris: "Not to take authority when I can have facts; not to guess when I can know; not to think a man must take physic because he is sick." This does not mean that the rank and file of the profession do not have the greatest respect for its leaders and their opinions; but they have learned not to take the opinions of these leaders without proving them. For a medical man to set forth a new theory is to erect a target for the other men in his field of work to shoot to pieces if possible. If it survives the barrage of critical analysis and repetition of experiments, it must have merit. The cold, clear light of scientific proof is the final test applied by the medical man.

After one has assimilated a good working theory about a certain disease and its treatment, it is not easy to be compelled to cast it out of one's mind on short notice; but when the successful physician is convinced that a new idea is better he knows he must throw away the old idea as readily as he would discard a last year's straw hat. This does not mean that he should be too ready to abandon old remedies for new ones until proof is offered that the new are better; but he should adopt as a motto,

> Be not the first by whom the new is tried,
> Nor be the last to cast the old aside.

Still another example set by the medical profession is that of cleaning its own house. At the beginning of this century there were 160 medical schools in the country, some of them nothing but diploma mills where the chief requisite for admission and graduation was the price. The quality of the men graduated by at least half these schools was, to put it mildly, decidedly inferior. The American Medical Association appointed a commission to study the situation. Without legal authority and with only the power of propaganda used in a worthy cause, the number of schools was reduced by half, and only the fittest survived. Now the public may rest assured that a medical graduate of today is a picked man, worthy of confidence.

Another medical characteristic, which can be carried too far, but which the great majority of our population might well cultivate, is a wholesome disregard of public opinion. As long as the average doctor thinks he is right, he cares little what the public may think of him. In the matter of medical ethics he is often misjudged; but as long as his own conscience is clear, what matters it if he be misunderstood and even maligned? There is a real reason for the code under which doctors have been working for centuries before the Blue Eagle spread its wings over the industries of America. Indeed, the oath of the Hindu physician, which embodies most of the principles of most of our present code of medical ethics, antedates by some centuries the famous Oath of Hippocrates, which is universally regarded as the real foundation of our modern code—and Hippocrates lived between 460 and 370 B. C.

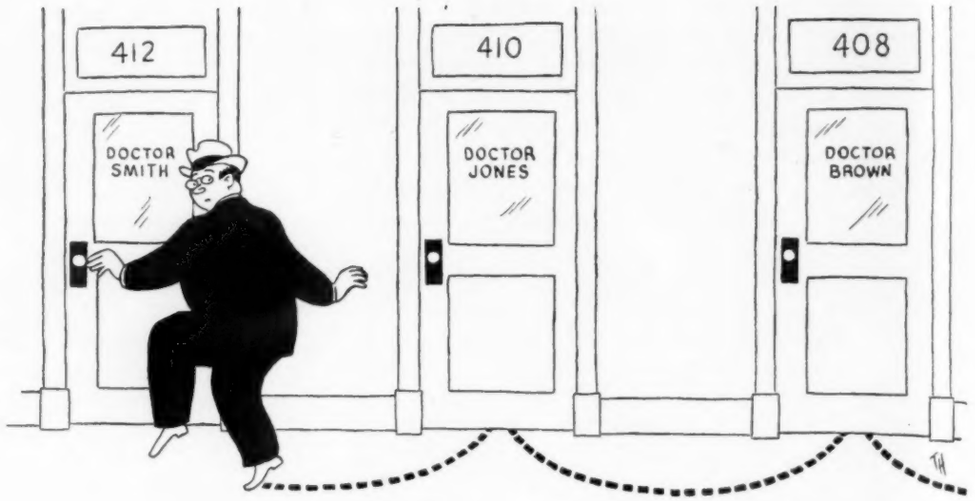
IT IS lamentably true that many individual physicians fall far short of the high ideals of their profession; but their failure does not lower these ideals or prevent a fairly rigid adherence to them on the part of most of its members.

To a young man just beginning the study of medicine it may be discouraging to find that within five years after he is graduated, all his textbooks are out of date, that many of the solemn teachings of his revered professors must be rejected and that he must learn to replace old ideas with new ones even oftener than he changes automobile tires. It is tantalizing to learn "How teasing truth a thousand faces claims, as in a broken mirror."

Unless his mind is resiliently flexible, a young man had better stay out of medicine; but to the true doctor the very thought of belonging to a profession which is ever growing, which is dynamic, not static, and which knows no authority but the hard one of scientific fact is a challenge to the best that is in him.

A Doctor Looks at His Patients

By
DONALD WHYTE



HE DOES NOT ACCEPT THE OPINION OF ONE DOCTOR; HENCE HE OFTEN SECRETLY VISITS TWO OR MORE DOCTORS IN SUCCESSION AND COMPARES THEIR OPINIONS.

ANY DOCTOR who wants to have answered the immortal prayer of Robert Burns,

O wad some power the giftie gie us
To see oursel's as ithers see us!

need have no trouble in having his wish gratified. For many years, article after article has been published in various magazines on the subject, with very slight variations, "A Patient Looks at Her Doctors." A woman has recently written a whole book on the subject, with a foreword and conclusion by her husband. Incidentally, it deserves notice as the only case in literature in which the husband was allowed both the first and the last word.

Some show more originality in naming their productions; for example, there is Irvin Cobb's justly famous "Speaking of Operations" and Will Rogers' "Ether and Me." In a magazine article a druggist once drew a coarse caricature of a doctor, perhaps an attempt to justify his own unethical counter-prescribing. (I have known a druggist to sell a "blood-purifier" to a man with smallpox.) Even a physician himself has assumed the rôle of patient and stared rather contemptuously at his own medical advisers in "A Doctor Looks at Doctors."

This scrutiny of the profession may be given story form, as in a magazine story by F. Scott Fitzgerald, which was noteworthy for at least eighteen displays of ignorance regarding medical practice, not counting such improbabilities as the senior visiting physician of a famous hospital gossiping with a day-old intern about a love affair between a surgical colleague and his lady anesthetist.

It must be admitted that there is scriptural authority for this critical inspection of the doctor. In the gospel of Mark we are told that "a certain woman . . . had suffered many things of many physicians, and had spent all that she had, and was nothing bettered, but rather grew worse." Even the physician Luke admitted that she "had spent all her living upon physicians, neither could be healed of any." Were this woman living now and able to guide a pen, what a story she could make for our magazines!

None of the patients who look at their doctors are at all complimentary. Indeed, "if looks could kill," medical ranks would be considerably depleted.

IT OCCURS to me that it is high time for an exchange of glances. After twenty-five years spent in looking at people from the point of view of a general practitioner, it is to be hoped I have learned as much about patients as the literary man or woman learns about doctors from one operation or illness. Just as the physician of experience learns to place his desk so that his patient's face is in the light while his own is shaded, I am looking at my patients now from the kindly shadow of anonymity. The descriptions are chiefly composite photographs, with here and there a specific case report. While my glance is meant to be somewhat penetrating and analytic, as befits a physician, I trust it will also have in it much of the friendly interest and kindness that is part of our professional heritage.

The thousands of human beings I have seen on hospital beds, in clinics, in their homes, in hotels and boarding houses, on the street and in my office may be roughly divided, according to their chief characteristics, into several groups. The glances cast at these groups of patients must also include their families, and when the term "patient" is used in this discussion, it will often include the whole family, for one of the doctor's first lessons is that the relatives are often harder to treat than the patient himself.

In the first group to be inspected belong most of the writers in question. They are the suspicious ones, those who use the psychology of the shrewd father who told his young son to jump from a fence into his arms, then purposely let the boy fall sprawling to the ground. When reproached for his cruelty, he replied, "I want him to learn to trust nobody—not even his own father." This sort of patient does not take the opinion of one doctor, and he distrusts an open consultation, feeling that the consultant must agree with the first doctor; hence he will often secretly visit two or more in succession and compare their opinions. Not long ago a young woman came to my office for an examination. When I told her that she should part company with her appendix she left without much ado. An hour later a surgeon called to ask whether I would give her an anesthetic for an appendectomy the next morning. He was greatly surprised to learn that she had just left my office. She had consulted him the day before and had received the same advice I had given, but she was not willing to trust one man's opinion. She may have seen several others, for all we knew. This happens so often that doctors of experience usually learn to "spot" such patients.

A FREQUENT manifestation of distrust on the part of the family, friends or neighbors is the feeling that the attending physician will not tell the truth about the sick one. After the ones most concerned have been told just what the doctor thinks of the patient's condition, it is a common experience to have some one stop him outside the bedroom and another at the front door; a third and even a fourth may wait on the front porch and yet another beside his automobile. Even then he is not safe, for the telephone, that favorite invention of the devil, may be used by others. Each one seems to think that the doctor has deceived the ones who really have a right to know but that if he is pressed hard enough, he may be persuaded to tell an outsider the real truth. Long experience has taught him in serious cases to get as many of the family together as possible and talk to them at once and to tell the curious ones encountered afterward that he has told the family all he can and has not time to go over the ground again.

The overanxious patient is often met, and not infrequently he is also of the suspicious type. This patient carries the weight of his ailment and its treatment on his own shoulders. For every prescription given, whether of medicine, hygiene or diet, he wants a reason. He wants to know just what to expect from every dose of medicine and just how soon it should begin to take effect. He demands an explanation for every feeling he has, and the slightest deviation from the normal pulse rate or temperature curve causes alarm. He usually has his own thermometer and uses it frequently. I once had an urgent call to see a man in excellent health who in testing a new thermometer found his temperature three degrees below normal, immediately after a drink of ice water. With the slightest discomfort after eating, the preceding meal is reviewed, and some article of diet is henceforth tabooed. The function of the intestine is watched so closely that one feels like echoing the advice of Samuel Johnson, "Do not be like the spider, man, and spin conversation incessantly out of thine own bowels."

The blood pressure instrument has been a curse to this kind of patient. He invariably insists on knowing just what the reading is in figures, and a negligible variation of a few points assumes awe-inspiring proportions.

IN CONTRAST to the overanxious patient or parent is the indifferent one. This is a small class and is, I believe, growing still smaller. More than one child has died of diphtheria because the parents assumed he had a simple tonsillitis. Numerous appendixes have been allowed to rupture through delay and a misguided effort to "remove the cause" by purgation. I have seen dysentery claim the life of a baby whose parents delayed calling a doctor because the grandmother assured them the trouble was due to teething. In many a child, malnutrition or rickets or tuberculosis has been allowed to develop through indifference.

AFTER THE ONES MOST CONCERNED HAVE BEEN TOLD WHAT THE DOCTOR THINKS OF A PATIENT'S CONDITION, IT IS NOT AN UNCOMMON EXPERIENCE FOR HIM TO BE BESIEGED BY THE INQUIRIES OF FRIENDS, RELATIVES AND NEIGHBORS AS HE GOES.

An apparent indifference may be due to excessive thrift on the part of the head of the family. Many a man who is amply able to afford anything he wants will take a long chance before summoning a doctor. More than once I have been embarrassed by a family argument in my presence as to whether it was necessary to call me. It is true that many patients will get well without medical attention. It is hard, however, to distinguish over the telephone between a follicular tonsillitis and diphtheria or between appendicitis and the green-apple variety of colic; yet almost every day a doctor is expected to stake his reputation on making this sort of diagnosis, in order that the patient may save the fee for a visit. It takes an expert medical navigator to avoid criticism by steering between the Scylla of unnecessary visits and the Charybdis of neglecting his patient.

Even highly intelligent people may show a curious indifference to physical welfare. In his famous "Speaking of Operations," Irvin Cobb admits choosing a doctor because he liked the way his whiskers were trimmed. No doubt he used good judgment in selecting a grocer, a banker, a broker and possibly a lawyer, but he lived in New York for years without giving a thought to a medical adviser until pain forced him to do so. Many of the writers who complain so bitterly about the incompetence of the profession testify that they themselves waited until a medical or surgical emergency arose before they even thought of selecting a doctor and that they then called the first one they could think of or could find in the telephone directory.

THE ungrateful patient is only too frequent, and he may also write magazine articles. During my intern days an old lady who had been asphyxiated by illuminating gas was brought into the hospital. Hard work brought her from the edge of the hereafter. She had not attempted suicide and had no desire to die; but did she thank us for saving her life? She did not but instead complained bitterly because a hot water bottle had raised a tiny blister on her heel. Here again a precedent may be found in scripture. Of the ten lepers healed by the Saviour, only one took the trouble to thank Him for his cure.

The unstable patient is usually a variety of the ungrateful type. He flits from one doctor to another and is a temporary boon to the last medical arrival in town. If a neighbor tells how quickly Dr. X cured him of acne, the unstable one's adolescent daughter goes to Dr. X; but woe betide poor X if the case is more stubborn than was expected, or if another acquaintance tells that Dr. Y has just bought an ultraviolet lamp that will cure acne overnight.

If he but knew it, the unstable patient loses much by his fickleness. A doctor finds it much

MANY A MAN WHO IS AMPLY ABLE TO AFFORD ANYTHING HE WANTS WILL TAKE A CHANCE BEFORE SUMMONING A DOCTOR. MORE THAN ONCE I HAVE BEEN EMBARRASSED BY AN ARGUMENT IN MY PRESENCE AS TO WHETHER IT WAS NECESSARY TO CALL ME.

easier to do his best for a loyal patient than for one whom he knows went to Dr. X yesterday and will probably go to Dr. Y tomorrow and to Dr. Z the day after tomorrow.

THE exacting and impatient patient does much to mar the doctor's disposition. He expects all sorts of unreasonable sacrifices. No matter what time of day or night he calls or how trivial is his ailment, he expects instant response. One of these impatient patients, in the course of a bitter tirade against doctors which he published a few years ago, casually mentioned having called a famous eye specialist from dinner "with the richest man in the world" to remove a cinder. This is the sort of person who will endure a sore throat or a stomach ache for a day or two, then decide suddenly at 11 p. m. or at 3 a. m. that he must have a doctor at once, though he may be no sicker than he was twelve hours earlier.

One doctor was called in a most urgent manner to see a patient four miles from town. Although his dinner was already overdue, the need for haste was so stressed that he started immediately. He was met at the door by a spinster who informed him that she was the patient. She had had eczema on her hands for ten years and had just decided that she wanted him to prescribe for her. Early next morning his telephone rang. At the other end of the wire his patient complained that she had applied his salve as directed but that her hands were not yet well!

One morning while I was rushing to make a heavy schedule of calls my secretary got in

touch with me and said that a young man was in my office and must see me at once. I asked her to explain that my office hours did not begin until afternoon and that I was swamped with outside work; but he insisted that it was extremely important that he see me immediately. Fearing something serious, I made haste to the office, to be told that his wife, who was five months pregnant, wanted to take a trip of fifty miles to spend the week-end with a relative, and he wanted to know whether it would be safe for her to do so! Apparently it had not occurred to him that his question could have been answered over the telephone.

One expression that, with slight variations, every doctor is doomed to hear, ad nauseam, is, "When I call a doctor, I want him to come right then!" It is always uttered with the air of one who has just stumbled on an observation as profound as Einstein's theory of relativity and as witty as anything Dr. Samuel Johnson ever said in his palmiest days. It always evokes from the lay hearers guffaws of laughter, followed by a chorus of approving "me toos." It perhaps does not occur to these wits that two patients might be seized with a desire to see the same doctor at the same time. Many a time I have had as many as six calls while dressing, each caller wanting me to come to his house the very first thing. Obviously somebody has to wait. In such a dilemma I am sure every doctor goes first to the one he thinks is most in need of help and then works out from that starting point.

THE very one who expects the best service is also apt to be least disposed to inconvenience himself. One evening I had gone to make a call in a suburb about four miles from my home. There was no telephone in the house, but a sister's family three doors away had one, so when an urgent call came from another patient in the same suburb, my wife asked the sister's husband whether he would not give me the message. I had answered a number of hurry calls to this family, many of them after midnight, so it was reasonable to expect he would welcome an opportunity to show his appreciation. He said that he had already taken off his shoes and could not deliver the message. I had to drive home and then come back to the same vicinity, an eight mile circuit, because he would not take the trouble to walk half a block. Yet a few weeks later when his baby ate a slab of coconut cake and had a convulsion at 2 a. m., no fire alarm was ever more urgent than was the summons I got. And, fool that I was, I went posthaste.

Another familiar type of patient, also inclined to write magazine articles, is the sophisticated one, the professional invalid who literally "enjoys poor health." If he is well to do, he often makes a profession of illness: he visits various clinics, picks up a smattering of medical terms and enjoys discussing his ailments at great length. He accumulates an assortment of notions about diet, and the more freakish the idea, the more it appeals to him.

THE professional invalid presents a most difficult problem. In no other instance is a little learning as dangerous. The opinions he gets from the various doctors he visits, while often the same fundamental idea expressed in different terms, seem to him so irreconcilable that he loses faith in the medical profession, particularly its members who are honest enough to tell him what they think rather than to agree with his own ideas. This the quack, either medical or nonmedical, knows how to do, and so he is apt to be most in favor.

The chief reason why this patient is so hard to treat, however, is that he does not want to get well. Any psychiatrist can explain it in ponderous terms which, translated into plain English, mean that the professional invalid gets so much pleasure from being the center of attention of his family and friends that he is not willing to exchange it for the life of a normal individual, or that he lacks the nerve to face life's problems and uses his illness as an excuse for evading them. The motive is so far below the surface of the patient's subconscious mind that he does not know it is there; but it is just as real as was the submarine that blew up the *Lusitania*.

Frequently the physician is asked by one of a family to preach a sermon to another member, using his physical condition as an excuse. Because a doctor's words are supposed to carry some weight he is often asked to give moral advice and is even expected to lie in order to drive home a moral lesson. For example, a mother may send her son to my office and telephone me beforehand to let me know that Johnny is coming with a pain in his stomach and to request me to tell him that it is due to smoking cigarets or to staying up too late at night or to any other habit she wants him to stop. So far I have steadfastly refused to stultify myself in the eyes of these straight-thinking young people, for I want my advice to be honest. And I know that the youngsters under my care feel that they can trust me and believe what I tell them.

In this day of enlightenment, it is generally recognized that doctors, while doing their best to keep up with the important advances in medicine for the benefit of their patients, are only human beings. It is embarrassing to the point of humiliation when we are expected to work miracles; and when it is discovered that we are unable to do so, this naive faith is apt to be replaced by bitter recrimination. For ten years a note written by the father of a child who died two years previously has been kept

in my files as a check on any egotism I might develop. Let me preface it by a brief statement of the incident that prompted it.

After four weeks of fighting against an overwhelming influenza epidemic, I was almost exhausted. In addition to about forty other patients I had seen this man's child on Christmas day and the day after. Christmas eve an obstetric case had kept me up all night, and it was at 3 o'clock the next morning that I retired. At 7 the telephone had started, and I had been kept going at top speed until 1 o'clock the next morning. I had had a solid stretch of more than forty hours' work and another of thirty hours, separated by four hours' sleep. I had crawled into bed with every muscle aching and had just dozed off when the telephone rang with a summons to see this child. In self defence I had been forced during the epidemic to make it a rule not to answer night calls except for my own regular patients. Never having seen this family before, I did not feel the same obligation to them as if they had been old patients. I explained the situation as best I could and offered to send a younger man but was indignantly refused and told I need not come back any more.

My bill was ignored for two years, and when it was finally paid the following note was penned at the bottom of the statement: "My reason for not paying you before now is that I called you one evening and you said that you had retired and could not come until morning so I had to get another doctor and later my baby died. I think things might have been different should you have come. So I hope I will never need you again."

Let me repeat that if this had been one of my old families, nothing short of actual illness on my own part would have kept me from going; but a human body can stand only so much punishment, and I had to keep the little reserve strength I had left for regular patients. And, from the shelter of anonymity, I can say that the matter of whether or not they paid their bills mattered perhaps too little. Once I asked a colleague, also a general practitioner, whether he did not get tired of going to see a family of his who were never known to pay a bill. "Well," he said, "they are so loyal that I can't refuse them."

PURPOSELY the best has been saved for the last, the ideal patient. This class constitutes a majority of my practice, and to them I turn, both figuratively and literally, when I am inclined to sit cynically under the juniper tree. They seldom write magazine articles or books about us; but when they do, their words are as honeycomb, sweet to the soul and health to the bones. Such a patient Robert Louis Stevenson must have been. What doctor has not found great comfort in his famous tribute to doctors, all the sweeter because, for all his loyalty to our profession, it could do nothing beyond making his life more tolerable; it could not give him health and strength. Contrast his spirit with that of the old lady who, when her life was saved, forgot her gratitude in her annoyance at a blister on her heel!

LOYALTY is the most important characteristic of this group of patients, and it is repaid with compound interest by the doctor. Loyalty does not blind these patients to the fact that doctors are not superhuman; but they know that we will do our best for them because they trust us and we dare not betray their trust. To these families under my care I feel that I belong as a sort of honorary member, and my advice is often asked on matters other than medical. I have been consulted about love affairs, licit and illicit, about business deals, about the discipline of the black sheep in the family, about the selection of a school for the children, about the school curriculum, about books to read, about plots for school themes, about buying a car, and so on, ad infinitum. Just now, for example, I am wrestling with the dreadful secret, confided to me by a poor fellow who is unhappily married, that he is deliberately making plans to kill himself within the next month or two. He is too well balanced to commit to an asylum. I am his human hope of salvation and must think of some means of dissuading him, if possible.

Consideration is another trait that endears the ideal patient to his doctor. He will not call his doctor to the telephone for trivial matters at unseasonable hours and, except in an urgent case, will not disturb his rest at night. When he calls in the daytime he usually states whether or not haste is necessary and trusts the doctor to get there as soon as convenient. As a reward for this consideration, when he does need medical attention urgently he is apt to get it.

The ideal patient calls a doctor when he thinks it necessary and trusts him to make as many visits as he should to care for the sick one, without profiteering through useless ones. He will pay his medical bills promptly when able; but when he suffers such financial reverses as have befallen many worthy families of late years, I, for one—and my name is legion—will not desert him in his hour of need but will give him the same service as when the monthly check was a certainty.

Finally, the ideal patient will select his family or personal physician with great care, will let him know that he is regarded as chief medical adviser, with the privilege of calling all the skilled assistance needed, and then will trust this doctor as long as he shows himself worthy of confidence. And in an emergency or an epidemic, such a patient will rarely find material for a book or a magazine article criticizing his medical treatment.

A Man's Best Friends

By
LUCRETIA PENNY

FIVE OF THE SIX MEN WHO WERE HIS PALL-BEARERS HAD PLAYED CARDS AT HIS HOUSE JUST ONE MONTH BEFORE THE DAY OF HIS FUNERAL. HE WASN'T FEELING VERY WELL AND CONFESSED THAT HE WAS WORRIED. HIS FRIENDS WENT RIGHT AFTER THAT OLD WORRY. THERE WASN'T ANYTHING THAT THEY WOULDN'T DO FOR HIM!

HENRY SMITH'S death, at the age of 40, was a shock to his friends. Five of the six men who were his pallbearers had played cards at Henry's house just one month before the day of his funeral. Henry wasn't feeling very well then. In fact he might have been pretty blue if the boys hadn't been there to cheer him up. He admitted it and confessed that he was worrying. His friends went right after that worry. There wasn't anything they wouldn't do for Henry.

Dan had been Henry's business partner for years. He was ten years older than Henry. Henry always listened to Dan; he had confidence in his judgment. "Forget it, son," Dan advised. "Most of us have some trouble with the old engine as we get older. Mine gave me a scare seven or eight years back. I decided to ignore it, and you notice I'm still alive. I've always been glad I didn't lose my head and start coddling myself."

Walt and Henry had been classmates at college. Walt was best man when Henry and Susanne married fifteen years ago. He is Junior's godfather. Walt never was ill in his life. He knew what Henry needed: "More golf. More exercise of all kinds. Get up an hour earlier. Take a cold shower. Walk to work. Six miles? What of it? The trouble with the American business man is he lets himself get soft. What he needs—what you need—is to rough it more. Wish I had you up at my camp. I'd toughen you in a hurry, and it wouldn't be gradual either."

Phil is a conscientious fellow, always eager to be helpful. No one he'd rather do a favor for than Old Henry. They'd been friends for years, had grown up in the same small town. Phil put down his cards and looked at his friend earnestly. "Here's a tip, Hen," he offered. "It might be worth money to you. My wife has an aunt who takes a lot of interest in cures and all that sort of thing. Keeps right up to the minute, too. She was out at the house one evening last week, and she was telling us about two women she knew who both thought they had stomach ulcers. They heard a radio lecture on the danger of using a certain kind of kitchen utensil,

and they changed over to another kind and both got all right. Seems that the chemical reaction of certain food substances on the cooking vessels poisons certain people. I don't recall now what it was they were using or what they changed to, but I can find out. Now if I were you, I'd look into that before I spent one cent on doctors. It might save you a lot of money."

Alf has always been a man of few words. He dismissed the problem under discussion with a shrug of the shoulders: "Indigestion."

Ken was helpfully sarcastic: "Appetite's swell, and you're still holding your own in this game. If you're sick, I'd not care to be well!"

The five guests laughed. They were fond of Henry. He was their friend. He needed cheering. Of course he did look as if the pain he spoke of might be pretty real, but you know how those things are—here today and gone tomorrow. No use letting your mind dwell on them.

Roger wasn't in on the card game. He was out of town. He heard about it from Kenneth a couple of days later. There wasn't anything Roger wouldn't do for Henry. They used to be next-door neighbors before Henry built his own home. Henry had done plenty for him in those days! Roger phoned right away and asked his friend to meet him for lunch. They went to an Italian restaurant where the food was the kind to stick to your ribs. Roger insisted that he wanted to see Henry eat as though he meant it.

"So you've decided to see a doctor? Well, suppose you do. No harm in that, if you don't let him scare you. But listen to me, boy. Take what he tells you with a grain of salt. Of course he'll find something wrong somewhere. That's his business. Just don't let him scare you. Look at me! Four years ago they said my tonsils must come out. I said, 'Not on your life.' Well, look at me now! Ever hear of my having a sore throat? Tonsils don't worry me any more than they would if I had them bottled in alcohol. Except for my rheumatism, which naturally gets worse as I grow older, I'm sound as a dollar. You take my advice and take along a grain of salt when you go to the doctor."

Henry's death was a great shock to his friends. They've talked about little else since.

"Heart trouble! They say it's the leading cause of death today. Strange that the medical profession will let a thing like that go on. Why don't they get at the bottom of it; root it out; lick it; apply their scientific knowledge; go after it the way any one of us would tackle a weak spot in our business? It's certainly hard to understand!

"And poor old Henry was all alone at the office. If we'd only known. There's nothing his friends wouldn't have done for him!"

AMERICAN MEDICAL ASSOCIATION RADIO PROGRAMS

The American Medical Association Broadcasts Weekly over the Networks of the National Broadcasting Company and the Columbia Broadcasting System

National Broadcasting Company

Middle Atlantic States

WJZ	New York
WSRY	Syracuse, N. Y.
KDKA	Pittsburgh

East North Central States

WCKY	Cincinnati
WENR	Chicago
WIBA	Madison, Wis.

West North Central States

KSTP	St. Paul
WEBC	Duluth, Minn.
KFYR	Bismarck, N. D.
KWCR	Cedar Rapids, Iowa
WREN	Kansas City, Mo.
KWK	St. Louis
KSO	Des Moines, Iowa

South Atlantic States

WBAL	Baltimore
WMAL	Washington
WTAR	Norfolk, Va.
WPTF	Raleigh, N. C.
WWNC	Asheville, N. C.
WSOC	Gastonia, N. C.
WIS	Columbia, S. C.

East South Central States

WSM	Nashville, Tenn.
WMC	Memphis, Tenn.
WJDX	Jackson, Miss.

West South Central States

KVOO	Tulsa, Okla.
WKY	Oklahoma City
WFAA	Dallas, Texas
KTBS	Shreveport, La.
WOAI	San Antonio, Texas

The broadcasts over the National Broadcasting Company network are scheduled each Tuesday at 5 p. m. eastern daylight saving time (4 p. m. eastern standard time).

June 4. The Crippled Child, Dr. W. W. Bauer.

June 11. From New York, speaker and topic to be announced.

June 14. Friday. MEDICINE IN NORTH AMERICA, from Philadelphia, by Dr. James S. McLester, President, American Medical Association; Dr. Jonathan C. Meakins, President, Canadian Medical Association, and Dr. Morris Fishbein, Editor, THE JOURNAL A. M. A. and HYGEIA, The Health Magazine.

June 18. Only One Pair of Eyes, Dr. W. W. Bauer.

June 25. The Nation's Birthday, Dr. W. W. Bauer.

After June 25, talks over the network of the National Broadcasting Company will be discontinued until further notice.

The broadcasts over the Columbia Broadcasting System are scheduled each Thursday at 4:30 p. m. Chicago daylight saving time (3:30 p. m. central standard time).

June 6. Wound Infections, Dr. W. W. Bauer.

June 13. Summer Camps, Dr. W. W. Bauer.

June 20. Burns, Dr. W. W. Bauer.

June 27. Blood and Fire, Dr. W. W. Bauer

Programs are available to the stations listed at the right and left. Local stations may not broadcast network programs regularly and in some instances may not broadcast them at all. Local requests for programs might cause local stations to broadcast them.

Columbia Broadcasting System

West North Central States

WCCO	Minneapolis
WNAX	Yankton, S. D.
KSCJ	Sioux City, Iowa
KFAB	Lincoln, Neb.
WMT	Waterloo, Iowa
KMBC	Kansas City, Kan.
WIBW	Topeka
KFH	Wichita

East North Central States

WMBD	Peoria, Ill.
WISN	Milwaukee
WBBM	Chicago

West South Central States

KOMA	Oklahoma City
KRLD	Fort Worth
WACO	Waco
KTSA	San Antonio
KTRH	Houston

Mountain States

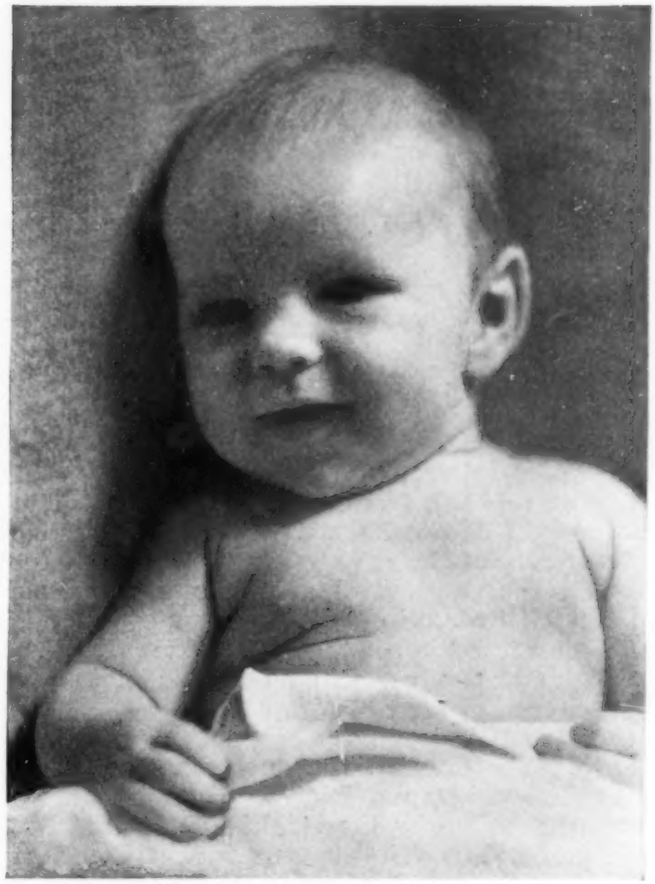
KLZ	Denver
KVOR	Colorado Springs
KSL	Salt Lake City
KOH	Reno

Pacific States

KERN	Bakersfield
KMJ	Fresno
KHJ	Los Angeles
KOIN	Portland
KFKB	Sacramento
KGB	San Diego
KFRC	San Francisco
KDB	Santa Barbara
KOL	Seattle
KFPY	Spokane
KWG	Stockton
KVI	Tacoma

INFANCY: A Frontier of Science

By
ORVIS C. IRWIN



THE FACT THAT THE INFANT, THE LATEST ARRIVAL IN THE PSYCHOLOGIC FAMILY, CANNOT USE LANGUAGE IS A LIMITATION TO THE WORK OF THE INVESTIGATOR IN THIS FIELD.

THE INFANT is the latest arrival in the psychologic family. Just as the squirming first-born in his crib is one of the world's wonders to his proud parents so this new subject in psychology, the young infant, is an absorbing study to the scientific investigator. It is a little strange that the infant has only recently been discovered scientifically, for he has been an object of human interest for many thousands of years. Psychologists first studied the adult. Next the school child became the center of interest. Not long ago, the preschool child came on the psychologic scene. Now the young infant has moved into prominence.

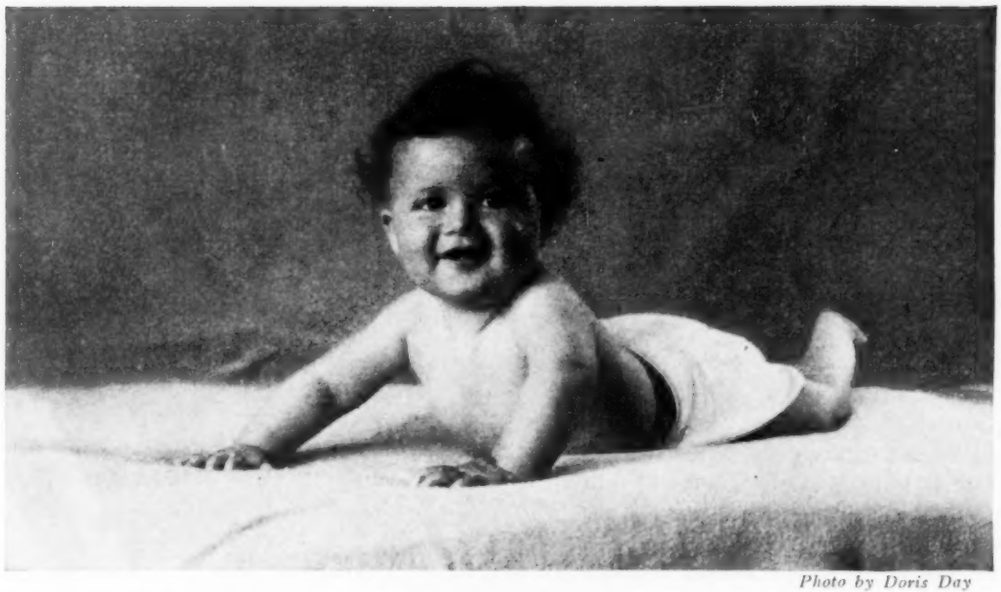
In view of all this it will be helpful to indicate the scope and the limitations of this new field of research. The fact that the infant cannot use language is a limitation to the work of the investigator for this excludes the verbal report method from this field. As a result, the investigator has been forced to use technics which are similar to the behavior analyses used in animal psychology; that is, he is limited to a study of the observable activities of infants.

There are two general problems which indicate the scope of the field of infant research. The first problem is the study of the behavior equipment of the new-born infant: What reactions does the infant perform at birth? The second general problem concerns the transformations from month to month of the new-born infant's reactions: How does the year old infant differ from the new-born?

A concrete illustration will help to clear up the nature of this problem. The new-born infant cannot reach and grasp an object. When the reaching reaction does appear it is a crude inadequate movement. Many months will elapse before the infant will move his hand directly to the object, grasp it and manipulate it. This is a long process. The investigator wants to know the exact status of the reaction when it first appears, and he follows the transformations through which it passes during the first months of life until it attains the nicety and economy which characterize the mature pattern of reaching, grasping and manipulating.

This briefly illustrates the general problem facing the investigator of infant reactions. In this fashion he studies the infant's first reactions to light and traces them until their mature status has been achieved. He does the same with the infant's reactions to sound, taste, odor and pain. This is the genetic method. It is by no means restricted to the sensory responses of infants but applies as well to all the problems in the field, such as language, the emotions, walking, equilibrium and learning behavior of infants. Moreover, within the scope of the investigation of motions during infancy is to be included the study of the early stages of the development of the lower animals.

IN SPITE of the fact that these problems seem to be fairly well defined, the fact still remains that only a beginning has been made toward their solution. The study of infancy has not yet achieved the status of a highly developed science. It is truer to say that the investigation of infants constitutes a new scientific frontier beyond which lie vast untapped possibilities for research. And just as the old western frontier was a scene of glamorous adventure, with its



MOTION PICTURES TAKEN AT MONTHLY INTERVALS REVEAL PROGRESS IN THE DEVELOPMENT OF THE ANTI-GRAVITY PATTERN. THE FIRST CHANGE IS THE ABILITY TO HOLD UP THE HEAD FOR A CONTINUED PERIOD; SOON THE HEAD AND CHEST MAY BE LIFTED OFF THE LYING SURFACE, FOR THE STRAIGHTENED ARM CARRIES THE WEIGHT ON THE PALM OF THE HAND, NOT AT THE ELBOW.

Photo by Doris Day

great areas for exploration and its rushes for gold and silver, so there is an allurement, a fascinating attraction to the many new problems on this new frontier of human knowledge.

I should like to have the reader catch some of the zest of the scientific explorer and cross the frontier at several of its more accessible points. The description of an actual experiment will be the best introduction to this area. About seven years ago, a sensitive device resembling a baby's crib, called a stabilimeter, was developed to measure the amount of the movement which an infant performed. His movements, which are free and unhampered by bedding or clothing, are transferred by the stabilimeter to a set of ink pens which write on a moving paper record. The tracings are the recordings of the oscillating movements of the crib made by the squirming, turning, kicking infant.

AFTER the records of seventy-five infants were analyzed, an interesting result was discovered. It was found that infants vary considerably in the amount of their activity, the most active one being more than 100 times more active than the least active infant. To understand the significance of this result one must know that one of the major problems which confront the psychologist is the unlikeness of human beings. And here among new-born infants the psychologist stumbled on one of his major interests. Obviously if he could discover the reasons for the wide differences in motility among infants, a new light would be afforded him concerning the problem of individual differences among human beings. This was the beginning of an intriguing search for factors at work in new-born infants to account for these differences, a search not yet concluded.

Why are these infants different? My co-workers and I prospected first in some physiologic matters, specifically concerning the nutritional differences of the infants. It was thought that perhaps the motility varied because the nutritional status of the infants varied. A formula well known to nutritionists gave values which indicated whether the infants were undernourished, well nourished or fat. But when we compared the nutritional with the motility values, it was found that, in general, an undernourished or a fat baby could be as active as a well nourished baby. In other words, the nutritional condition as indicated by this formula did not bear any relation to the activity of infants. This seemed hard to believe. Another formula, supposedly more accurate, was applied. Still no correlation could be established. This looked like the end of a promising venture, but the problem now is to fashion a still more accurate scale for measuring infant nutritional status.

In the meantime it occurred to us that probably body temperature might lead to a solution of our difficulty. We had taken the body temperatures of the infants at the time the motility was measured, but by means of statistical procedures it has been found that this hypothesis leads nowhere. Another attempt was made. We had found that waking babies are about six times more active than sleeping babies. This suggested the hypothesis that perhaps the mere fact of being awake might explain the matter. However, when this hypothesis was run down, we found something for which we were not looking, that is, the highly suggestive fact that whatever was causing the activity was also causing the wakefulness. So another promising clue vanished. But there were still others.

WE HAD taken a number of physical measurements of these infants. We knew their weights, their lengths, the diameters and circumferences of their heads and shoulders, their body areas and their intestinal surfaces. When the values for these physical traits were correlated one by one with motility, it became clear that they did

not represent independent factors accounting for the individual differences of our infants.

Out of the studies on the activities of infants have come some important general principles. The earliest movements of babies are marked by an absence of refined, well adjusted coordinations. They are crude and generalized, involving the whole body of the infant. We have given the name "mass activity" to this generalized type of movement. The specific forms of movement grow out of the mass activity and are best studied during the first and second years of life.

SINCE the study of animal infancy is throwing a great deal of light on the study of the human infant, it will be helpful to include here a short account of an infra-human organism. Let us take the case of the amphibian known as Ambystoma, a species of salamander. The first movement this animal makes is a bending of the head to the right or the left. A day or two later the bending involves the trunk, so that it is not merely a slight bending but has now actually developed into a distinct coil. The next transformation of this reaction is compounded of two coils, one to one side succeeded an instant later by a second bending to the opposite side, so that the organism assumes a double coil. This pattern is called the "S" reaction and is the basis from which the animal's swimming and later its walking movements differentiate. About the time the first swimming movements occur, movements of the gills or respiratory organs appear, and soon the jaw and feeding movements likewise appear. As in all tadpoles the forelegs of Ambystoma mature structurally and functionally before the hind legs. This development from head to tail is called the anteroposterior law of development.

The visual responses of this young animal are comparatively late. An interesting observation on the manner of the appearance of this specific movement has been made. It has been carefully verified that these specific movements of the gills, jaws and legs of this animal in their beginning are not independent movements. They are part of the trunk or coil movement. This means that at first they are not at all specific but are merely aspects of an undifferentiated massive activity of the whole organism. Independence and specificity of segments come later. Some of these later specific movements are called reflexes by the physiologist, and thus it becomes apparent that the physiologic reflex is a late comer in development.

Correlated with these facts is the structural maturation of the animal's nervous system. Mature neurones appear first in the medulla and the cervical region. Then they appear in progression down the spinal system, and later comes the maturation of neurones ahead of the midbrain. This is the posteroanterior aspect of nervous maturation. The development of the nervous system proceeds in these embryonic forms backward and forward from the lower structures of the brain. Thus there is a bidirectional development both in nervous structure and in the behavior of the organism. It is somewhat remarkable that the same laws of development of structure and function have been established for the early stages of a number of other animals including the fish, the cat, the rat, the opossum, the rabbit and the dog. A valuable study of the reactions and the neural maturation of the human fetus has established these laws for the prenatal development of the human being.

THESE principles of development can be shown to hold for the human infant; they have been demonstrated by a motion picture study of the posture in infants. I shall limit the term posture to mean the ability to stand erect, unsupported against the pull of gravity. This definition is not inclusive enough, but it suits the purpose. Achieving upright standing is a long, slow affair depending on a number of events going on in the infant's body. These

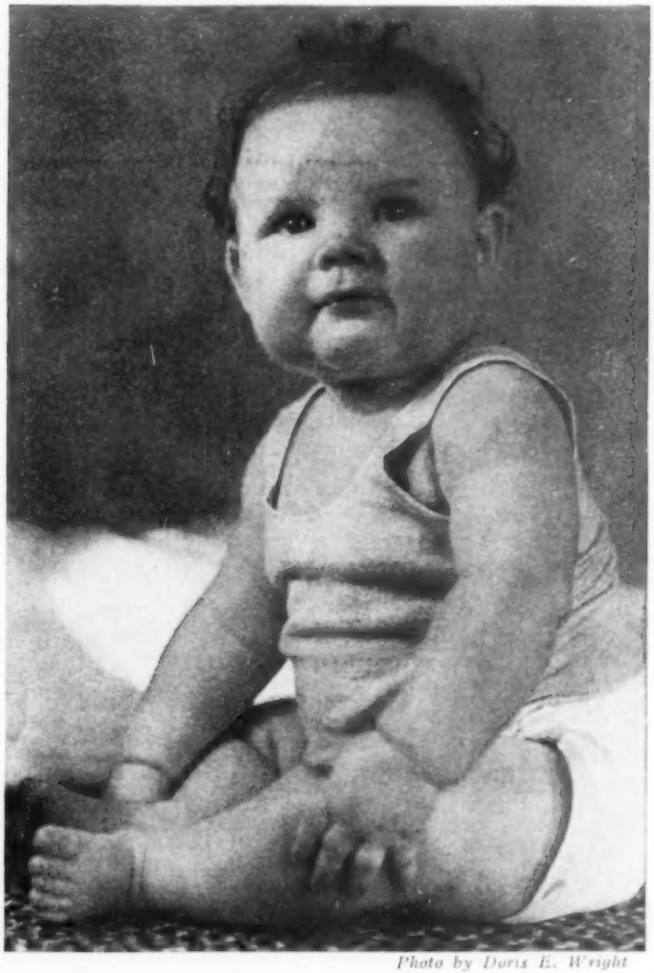


Photo by Doris E. Wright

THE NEXT STAGE INVOLVES THE MUSCLES OF THE TRUNK. AT 5 MONTHS OF AGE THE CHILD SHOULD BE ABLE TO SIT IN A WOBBLY POSTURE FOR SOME TIME BEFORE FALLING OVER.

events are both neural and muscular. It has now been definitely established by the physiologists that the ability of any organism to stand depends on several groups of muscles, particularly the extensor muscles of the neck, the back, the limbs and the feet. An extensor muscle is one that keeps a joint straight, and a flexor muscle is one that bends a limb, as at the knee. It has also been found by the histologists that during the embryonic period, flexor muscles mature in advance of extensors. Moreover, it is now known that the neural tracts in the nervous system which control the extensor muscles likewise mature late.

In comparing a motion picture of an infant immediately after birth with one of a normal infant about 10 or 12 months old, what does one see? The normal year old child can stand very well. This means that he can support his own weight against the pull of gravity by means of the antigravity or extensor muscles of the neck, back, legs and feet. The new-born infant presents a decidedly different picture. He lies on his back or stomach, completely at the mercy of gravity, and frequently can barely raise his head. His arms and legs usually are bent at the elbows or knees; that is, they are flexed. He is able to straighten his arms and legs, but usually he remains in a flexed condition because his extensor muscles are not strong enough to give him the antigravity posture called standing. Then, too, the sense organs of equilibrium in the ear and their corresponding nervous systems are too immature to function; but that is another story.

If at monthly intervals during the course of a year, motion pictures are taken of the infant and the film is then spliced, a year's change can be recapitulated by projecting the picture on a screen, and the changes that have occurred in what is called the antigravity pattern can be examined minutely. What has occurred during the interval from the utter helplessness of the new-born infant to the time when he can stand erect?

THE first change is in the ability to hold the head up against gravity for a continued period. At first the arms are not part of the antigravity picture, but the infant in a few weeks may support himself on the elbow. With this achievement the chest slightly clears the surface on which he lies, thus raising the head still higher. Soon the head and the chest may be lifted off the lying surface because the straightened arm carries the weight on the palm of the hand and not at the elbow. It is interesting to observe that first the upper arm is used and later the whole arm including the wrist and fingers. The functional development in the arm is in a distal direction, that is, from the shoulder outward, and it adds a third principle to our laws of development. It takes several months for these first stages of the antigravity pattern to be completed.

The next stage in the development of the pattern involves the muscles of the trunk. This is best studied by observing how the infant sits. Even several months after birth he cannot sit up alone. The motion pictures show that when he is put into the sitting posture, he collapses immediately. The antigravity musculature of the back is too weak. By the time the child is 5 months old, other things being equal, he can sit in a wobbly posture for some little time before falling over. The falling over involves the sense organs in the ear, and the ability to maintain equilibrium is another story.

At any rate the antigravity pattern now includes not only the extensor muscles of the neck and forearm but also the large extensor muscles of the back. Notice once more, the process of development starts in the neck or cervical region, proceeds out the arms and down the trunk. The next pattern includes the extension of the antigravity pattern down into the legs. Creeping is the general means of locomotion at this time, and creeping is a combined antigravity and progression pattern, depending, so far as the legs are concerned, only on the upper part of the leg to the knee. All this time the infant is unable to stand unsupported.

IF IN the monthly photographs is included a picture of the infant supported by another person, there will be noticed a striking resemblance of the infant's limb movements to the leg movements of a frog whose brain has been removed. When the skin of the decorticated frog is stimulated the legs flex and extend with a slow movement. The toes of the other leg may even localize the stimulated area. Something similar appears when the infant is held upright with his feet touching a surface. Here the stimulation is on the plantar surface; that is, the sole of the foot. The legs are flexed, slowly at first, in older children quite rapidly and with an exaggerated movement which brings the knee up to the trunk. Or the infant may perform alternating reactions with the legs, resembling bicycling movements.

The final aspect of the growth of the antigravity pattern concerns the plantar traction of the feet. An exceedingly young infant seldom places his foot on the floor in the manner of the adult, who rests his weight on the ball and heel of the foot. He shows a variety of plantar traction patterns. Sometimes he stands on the side of the foot, frequently on the toes alone, occasionally on top of the toes (dorsal traction) and even on the heels alone. When the antigravity pattern has completed its progress to include the feet of the infant, the normal adult method of placing the foot on the ground has predominated. *(Continued on page 570)*

BACILLUS TUBERCULOSIS
BY STAINING ALL KINDS OF BACTERIA WITH DIFFERENT COLORED DYES, KOCH MADE THE VERY TINIEST MICROBE STAND OUT CLEARLY TO BE PHOTOGRAPHED. HE WAS FIRST TO PHOTOGRAPH A GERM LESS THAN FIFTEEN THOUSANDTH OF AN INCH LONG
DIPHTHERIA BACILLI
KOCH PROVED TUBERCULOSIS GERMS IN THE DRIED SPUTUM COULD BE INHALED AND THE DISEASE CONTRACTED BY A HEALTHY PERSON. THANKS TO HIM, TUBERCULOSIS CAN NOW BE CONSIDERED AS A CLEARLY PREVENTABLE AND OFTEN CURABLE DISEASE
KOCH, CODISCOVERER OF DIPHTHERIA BACILLI, SHARES THE HONOR OF SAVING THE LIVES OF MANY THOUSANDS OF BABIES AND CHILDREN.
A CULTURE TUBE OF KOCH'S EARLY TUBERCLE BACILLI ON BLOOD SERUM
ANTHRAX BACILLI
KOCH PROVED THAT THE SPORES OF ANTHRAX IN THE TISSUES OF A RAT, DEAD A YEAR, CAN TRANSMIT THE DISEASE TO OTHER HEALTHY RATS OR ANIMALS.
KOCH WAS FIRST TO DISCOVER A METHOD OF GROWING MICROBES PURE, UNMIXED WITH OTHER GERMS.
TO PROVE THE INFECTIOUS NATURE OF TUBERCULOSIS KOCH INJECTED THE SICK TISSUE OF CONSUMPTIVES INTO HUNDREDS OF DOGS, MONKEYS, RATS, CATS, PIGS, COWS AND THEY ALL DIED. HE THEN INJECTED THE BACILLI FROM THESE DEAD ANIMALS INTO OTHER HEALTHY ANIMALS, AND THEY DIED.
ANTHRAX SPORES
WOLFGANG BEILIN

ROBERT KOCH

(1843-1910)

A Singularly Great Doctor of Medicine

By ADOLPH BEILIN

IMBUED with the rigorous scientific spirit for which he was noteworthy, Robert Koch was the first medical man to introduce a sound procedure in the diagnosis of infectious diseases by establishing four essential links in the chain of evidence to prove that a specific germ is connected with a particular disease. The four postulates are: first, that a germ of a particular type must be found in considerable quantity in the blood and tissues of the sick animal or person; second, that a pure culture can be made of the particular organism; third, that this pure culture, when inoculated into the body of another animal or person, must produce the disease, and fourth, that in the blood and tissues of that inoculated animal or person, quantities of the same germs that caused the disease must be recovered.

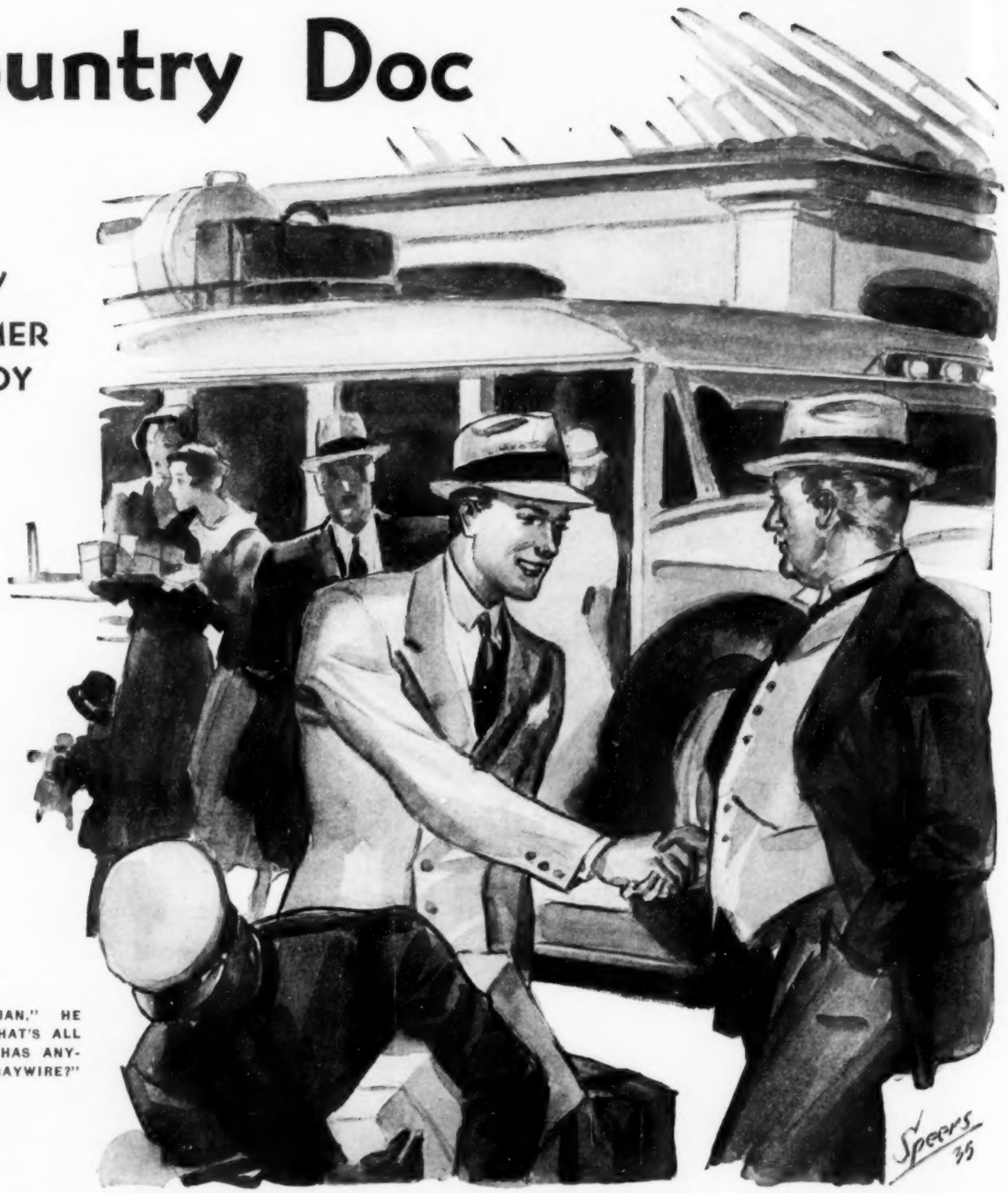
The entire chain of evidence outlined has been positively established in many infectious diseases. In certain other germ diseases the final steps have not yet been completed. It is, of course, impossible to appraise the vast import of Koch's discoveries within the compass of this brief biography. The inestimable benefit which he bestowed on mankind by his scientific and heroic deeds is beyond measurement.

Thanks to him, tuberculosis is today considered a distinctly preventable disease. He has also made possible an enormous reduction in the number of other infectious diseases. His work with the anthrax bacillus and his discovery of the tubercle bacillus, the comma bacillus of Asiatic cholera and the bacillus of rinderpest disease as well as the influence of his scientific labors on a number of other remarkable achievements render him immortal.

Robert Koch was born Dec. 11, 1843, at Klausthal, Hanover. As a man he was held in high esteem. He was dignified, sympathetic, gracious and modest, but firm in defense of his discoveries. Toward the close of his exceedingly active life many distinctions were conferred on him. He was an honorary member of nearly all the great scientific societies of his time, and he was twice recipient of the Nobel prize for medicine. He died of heart disease at Baden-Baden, May 28, 1910.

Country Doc

By HOMER CROY



"HELLO, JULIAN," HE BOOMED. "WHAT'S ALL THIS MEAN? HAS ANYTHING GONE HAYWIRE?"

JULIAN RICHEY sat holding his father's letter, stunned at the news it contained. How plainly those two sheets brought his father before him, two sheets written in a neat, smoothly flowing longhand. Most doctors fell into the habit of writing carelessly and hurriedly; "physicians' writing" it was called. But his father at 61 wrote a better hand than most medical men just starting out. At the top of the pages, printed by the Millersville job press, was his letter heading: "Julian Richey, M.D." Underneath were his office hours, and in the upper left corner was his telephone number.

"I don't think in all my life I ever had anything so hard to write, Julian, but I am afraid you will have to come home without completing your medical course. I've delayed writing this several days longer than I should in hope something would, as Micawber said, 'turn up,' but nothing has. It's hard, Son, and hard on you too, but times have been against me, and I simply haven't the money."

There was much more his father could have said, as Julian Richey knew. The tremendous pride his father had had that his son was going to follow in his footsteps, which would make the third generation with the same name and the same shingle. His father had planned it from the day his son was born (even before that, if he wanted to go back) and had laid away money for his medical course, a dollar at a time, for he was not a money making doctor.

When Julian had left home a month before, he had known there was the possibility of such a letter; yet it was no easier to bear than if the contents had been a surprise. Come home. Give up his medical course! Less than a year to graduate! His father must be pretty hard hit.

What would he do when he returned home? He couldn't practice with his father because he hadn't been admitted; and he couldn't very well ship off to a city hospital and enter as an intern. He had never had any interest in business; he'd probably be a dud at it, for he had never wanted to be anything but a physician. It wasn't easy to shift over at the drop of a hat; nor pleasant, for that matter. But he could not blame his father, for under the circumstances no one could have done more.

There was no use in studying. He went out for a walk on the campus. It was 6 o'clock, the strolling and fraternizing hour, when the students were more sociable and more inclined to talk than at any other time of the day. They loafed along in easy comradeship. It was hard to realize that some day some of these men might be a great honor to the profession; some of them would make discoveries which would cause their classmates to be proud of them. Maybe he could have done something worth while too, if . . .

Bob Hatch was the first one Julian told; and he did not tell it calmly and impersonally, as he had intended, but in a tumbled, rather disturbed sentence.

"That's tough, Julian. Isn't there some way? Your third generation too, isn't it? You see that pretty often back in the East but not so often in Missouri. I like it, this idea of passing the torch and so forth along. Must be hard on your father."

"He has the shingle his father had. It's an old piece of copper which screws on the side of the house. 'Dr. Richey' it says, and it's so dim you can hardly read it. Of course, out in the yard he has a modern shiny one, but his heart's in the old copper one."

"Of course. I know how you feel about it too."

"If he hadn't trusted everybody in town, he'd have had enough for me to finish," Julian broke out. "He's always been an easy mark. He's got enough on his books to build a wing."

"Modern medicos don't do that."

"I expect he could collect some of it, if he'd prod 'em along; but he won't. He's spent his life at country doctoring, and what's he got for it?"

"He's got a lot of recognition in the state. My old man says he never in all his life knew a brother doc with higher ideals. He still talks about a paper your father read before the Association."

"He carries it to extremes," declared Julian.

"The old ones do; but I like it in them."

"I do too," Julian had to admit, his resentment wearing off. "But I hate to be snatched away because my old man can't resist a hard luck story."

"You know, when it comes down to it," Bob declared, "you're just as strong on ethics as your old man."

As the bus rolled into Millersville, Julian kept thinking about his father. Coming face to face with him would be the hardest of all. He decided that he could at least be cheerful; no use in weeping over spilt milk. And he would make it as easy on his father as possible. On the whole his father would probably feel as deeply as himself. Three generations! One shingle!

Several persons spoke to him as he got off at the bus depot. Mr. Plugman was the most surprised of all. Mr. Plugman was president of the milling company and very successful too, although it was said one shouldn't go about turning up stones.

"Hello, Julian," he boomed. "What's all this mean? I didn't know you were going to honor us by coming back. Has anything gone haywire?"

"I guess I'll have to pass up my medical course for a while."

"That so?" Mr. Plugman's heartiness left off, business being business. "You'll be looking around, then, I suppose. You come in and see me. You know, I've spoken of this to you once or twice before. The millin' business is as good as any, I reckon."

Julian took his grips into the waiting-room and set them down near the door.

"Oh, hello, Julian!" called Cy Clark, the desk clerk. "Where did you blow in from? Glad to see you back in the home pasture. I guess you want to telephone, don't you? Is there anything wrong?" he asked, dropping his voice to a sympathetic note as Julian called his father's number.

"I've got to pass up my medical yearnings for a while, I guess. You know how things are today."

"Sure do," said the cheerful Cy. "I'm wearing my neckties on both sides now. Well, you look good. Saw your father this morning. He looked good, too."

Dr. Richey himself answered the telephone. "Hello, Son, is that you? I thought it might be, when the bell rang. I'll be right down. Just sit tight a few minutes, and I'll be along. How are you, anyway?"

"I'm pretty well. How're you and Etta?"

"Both of us doing fine. I'll be with you in two jerks."

As Julian waited outside the bus depot, Mr. Plugman drove up in his sleek car and throttled it down till it seemed hardly to breathe at all. "I've been thinking over that idea, Julian. Might

be something to it. You never make any money in the doc business. Look at your father. Fine fella, but where's puncturin' boils got him? I'm sendin' my son to Europe for a year. I don't mean to draw unpleasant comparisons, y'know; I'm just talkin' plain common sense. Come in and we'll talk it over."

"Thank you, Mr. Plugman. I guess I'll have to."

Mr. Plugman looked at him suspiciously. "You don't seem very crazy about the idea."

"I haven't switched over yet, I guess. I'll be in to see you, and thanks for your kind offer."

"It ain't kind. I'll make money out of you!" And with that Mr. Plugman and his car glided away.

"I'll bet I know who you are!"

HIS FATHER WAS WASHING THE CAR WHEN HE ARRIVED. JULIAN STOOD, ILL AT EASE, REPLYING AS WELL AS HE COULD TO HIS BANTER, UNTIL HIS FATHER GLANCED AT HIM SUSPICIOUSLY. "SAY! YOU'RE TAKING YOUR PISCATORIAL DEFEAT PRETTY HARD, SON!"

Even before he turned, he knew who had sung out those words. Will Sawyers, of course. He and Will had grown up together. Will was "reading law" in his father's office, preparing to settle the woes of mankind. "I could just see one ear, but I knew you. What are you doing here? Your father told me a few days ago he expected you back, but this morning he told me you had changed your plans and were going to stay with your bones."

"There does seem to be a mix-up," returned Julian.

"I should say so. He said he sent you a telegram to stay and not to come home. It must have come after you left."

"I did leave sooner than I expected. Couldn't stand mooning around on the campus."

"You'll be here a few days, won't you? I'm going up to Little Squaw Lake fishing in a day or two, and you come with me."

"Sure, I'll come, but I'm sure it's wrong about my father wanting me to stay in school."

"I know I couldn't have misunderstood him. I thought of Little Squaw then. Well, you two fight it out."

His father came up a few minutes later. The car looked ancient and dilapidated, but his father didn't; as Julian shook hands with him, he thought that he seemed more buoyant than he had in a year. "Hop right in, young fella, and I'll give you a free ride and a free dinner. I guess you didn't get my telegram, did you?"

"No. I didn't get any telegram."

"It's just as well. A little visit with the old man isn't going to do you any harm."

"Did you tell me to stay?"

"You bet I did. Ought to have gotten it off sooner but was out in the country—mule kick case—and when I got back the telegraph office was closed. So I had to wait, but I thought it'd catch you in time. Excuse me. I've got to stop. I promised the woman I'd drop in this morning, but I was too busy. I've had a big rush of business lately."

"This is one of your charity cases, isn't it?" asked Julian, as his father brought the car to a stop before a small frame dwelling.

"In a way, yes. Old patient of mine. I can't rush her, y'know!"

His father got out of the car in a manner that was almost sprightly, and with his faithful black bag dangling, rang the doorbell and disappeared inside. But before doing so he raised his hand in a light-hearted wave at his son.

"Didn't take me long, did it?" Dr. Richey said when he came back. "It's a bread-pill case, but a fella has to make these calls. Now for 721 North Mulberry Street."

In the same light mood his father sped down the street and up to the door of the Richey house, which was also his office. One side of it was devoted to the process of living, and the other, which was a sort of wing, was devoted to

the process of country doctoring. "Somebody's in the waiting-room," his father said as they got out of the car. "But you come on in the office with me. Let 'em wait a moment. Doesn't look like a hemorrhage to me."

"I was thinking about your shingle the other day," said Julian. "It's stood a lot of weather, hasn't it?"

"It'll be yours some day, Julian," his father said, more seriously than he had yet spoken. "I hate to admit it, but I'm slowing up. And I'm just a stripling, too, compared to your grandfather. He performed his first leg amputation with a hack-saw. But I guess you know that story by heart. Funny how things come to be symbols, but that piece of copper seems to be a link-pin, you might call it, which holds three generations of us together. Maybe more after that, who knows?"

"This morning I thought I wouldn't ever need your name plate."

"I guess you're wondering what it's all about," his father remarked as he opened the side door. "I'll tell you in a minute. Smell natural?"

It did, and Julian said so, for one of his earliest memories was the odor of that room, which always seemed to need airing and which never responded to it, as his mother knew when she was living and before his sister Etta had taken over the domestic duties. He felt a little homesick as he looked around, for he would never have an office of his own, he felt, in spite of the cheery mood which enveloped his father. How well he remembered everything in the room: the bottles, the wrinkled diploma, the faithful old skull with the bullet hole in it, slick from years of handling. That gruesome relic should certainly never come into his office . . . but he was not going to have an office. He picked up a bottle of hair dye, which was partly concealed in his father's cabinet, and looked at it casually.

"I see you've been laying in some new materia medica," he said, holding up the bottle.

"Oh, sure! Got to keep up to date. Know what I'm going to do with it? I'm going to take off ten years. I guess you'd better run in and see Etta. I'll let you know soon's I'm free."

"But what do you want with hair dye?"

"Oh, somebody left it here the other day. I put it aside and forgot all about it till your bright mind spied it. Glide past that door," he whispered. "Mrs. Randlett is out there; and if she gets hold of you, I won't get to see you before time to go back."

"So I'm going back, am I?"

"Of course you are! We can't have the third generation fall by the wayside. I'll tell you all about it when I get a breathing spell. Us country doctors! But I've never regretted being one. We don't have the fine offices and the carriage trade the city men have, but we have a chance to come closer into the lives of our patients and to help them. After all, you're measured by the good you do in this world. Glide!"

"Will Sawyer wants me to go to Little Squaw with him."

"Sure, go ahead. It'll do you good and won't do the fish any harm."

"Father has been awfully low lately," Etta said as the two sat in the old-fashioned living-room. "The lowest I think I ever saw him. Then three or four days ago he began to perk up. Didn't he seem lively to you?"

"I should say so. I expected to find him down in the dumps, but instead of that he's right up on the bit. He says I'm going back to school."

"That's what's pepping him up. You know how set he is on this three generation business. The moment he found you could continue on at school he puffed up like a balloon."

"How did it all come about, anyway? This is getting mysterious."

"He had a piece of luck, but I'll let him tell you about it. In fact, he told me to."

It was nice to chat with faithful Etta, but there was dinner to think of, for as she talked she kept jumping up and running to the kitchen and back again. "You see, I didn't expect you, and the minute you telephoned I started the ball rolling."

When the kitchen demanded her completely, he unpacked his things and then went for a walk. He paused in front of the house, on his return, and looked at it with a flood of memories pushing up in him. The house in which he was born. His father believed in hospitals, but he wanted his own son born in his home. His father was old-fashioned, yes; and yet curiously alert in things medical. A natural-born physician, that was what they called his kind. Through the window he caught a glimpse of his father's gray head with a stethoscope clinging to his ears like a giant two-armed crab. How many hearts and lungs that stethoscope and others before it had listened to. Good news sometimes; other times . . . Country doc. Yes, that was all he was. But if he became half the good influence in his community that his father was, that was all he would ask.

Mrs. Randlett appeared in the doorway. "Don't worry about that now," said his father. "The thing is to get well. You can . . ." His father paused at sight of him, Julian thought, then said in a voice slightly different, "Call me about it tomorrow. Yes, be sure to call me. That's very important. Here's my son, Mrs. Randlett. He's back for a day or two."

"Howdy, Julian," said Mrs. Randlett. "You've certainly got a wonderful father. I wouldn't be alive today if it wasn't for him."

"Of course you would. Don't you think Julian's looking well?"

"He looks well, and he looks like his father too."

"Do you think so?" said Dr. Richey proudly. He had heard it a thousand times, but it never failed to please him. "Do you see this?" he said, indicating the copper name plate. "He cut his teeth on that."

"He's funny today," declared Mrs. Randlett. "He's been joking like a boy. Well, goodbye, Doctor. I guess it won't be long till I'll be calling you 'doctor' too, Julian."

"Now we can have a little chin-fest," his father said when Mrs. Randlett had gone. "Good land! it's just one thing after another. But that's the way I like it. I never was a scientific test tube watcher. Just a country doc."

But they did not have the chin-fest, for Etta tapped on the window pane. "Dinner! Hurry, everybody. A good cook never wants her dinner to be kept waiting." Julian smiled at Etta's familiar reference to her cooking ability. Then she lowered the window. "I don't want my spoon bread to fall. Father suggested it in your honor."

It was not until after dinner that Julian had a chance to talk to his father. Etta was rattling away in the kitchen, and he and his father were alone in the sitting-room.

"I GUESS you must think I'm psychopathic," his father said as he poked around the room for his pipe. When he had found the elusive tobacco, he started it going, tamping it down with the end of his fever thermometer. "You cigaret boys don't know what solid comfort is. Well, sir, I had a piece of luck. That's the reason I seemed to have changed my mind so often. Would you like to know what the piece of luck was?"

"I've got time to listen," returned Julian, delighted to see his father in such high humor.

"I thought you would! It's as short as it's simple. In fact, I can tell it in one word—collections. I decided to come down on a mess of people who have been owing me money for goodness knows how long and make them pony up. Good land! I've got men with beards walking around in this county whose parents haven't paid for them yet. The iron hand in the velvet glove. I had a show-down with some of them and told them that if they didn't pony, there'd be plenty of excitement at the courthouse. Pulled back the velvet glove and let 'em see the hardware!"

"You must have done pretty well with your collections, especially these days."

"Better'n I hoped. The ol' iron hand in the velvet glove did it. I recommend it to you when you hang your shingle."

"Somehow I can't picture you as being very iron-handed, Dad."

"You can from now on. I've turned over a new leaf."

"You didn't seem to about Mrs. Randlett."

"Oh, that! Well, I couldn't push her. Do you know what I think I'll do with some of our wealth? Get me a new pipe. Sir Walter Raleigh smoked this one. Maybe I'll get the car fixed up too. One lung's about gone."

"You certainly feel rich."

"What was that line in Goldsmith's 'Deserted Village?' 'And passing rich on forty pounds a year.' That's Julian Richey, M.D.—and not a bit sorry!"

THE next day when Will Sawyers came with his car to whisk Julian off on the fishing trip, Dr. Richey was still in high spirits. "If you boys had given me a little time, I'd have gone with you. I mean it. I haven't caught a fish since Izaak Walton was a lad."

"It certainly doesn't sound like you, wanting to go off and dally away time fishing," laughed Julian. "I've seen people beg you to go, and you wouldn't."

"That was before I turned over my new leaf. I'm going to take things a bit easier for a while. So-long, and bring me an affidavit for every fish."

The fishing was nothing to boast of, and the day was uneventful. Finally, growing discouraged, Julian and Will returned to the little camp house at the edge of the lake and gave up the idea of luring the fish out of their accustomed places. The two sat around talking idly about nothing at all and enjoying it. They had seen hardly anybody since their arrival, for at this time of year there were not many fishermen, but it made no difference to them. Talk and companionship made up for the meager basket with which they would have to return.

"How much gas you got in that car?"

They both turned, startled by the words, for they had seen no one at all. A man was standing behind them, evidently having come from around the cabin, and his face was none too prepossessing, for he needed shaving.

"I don't know that it's any concern of yours," Julian answered, determined not to be imposed on by a nondescript. "It's my car."

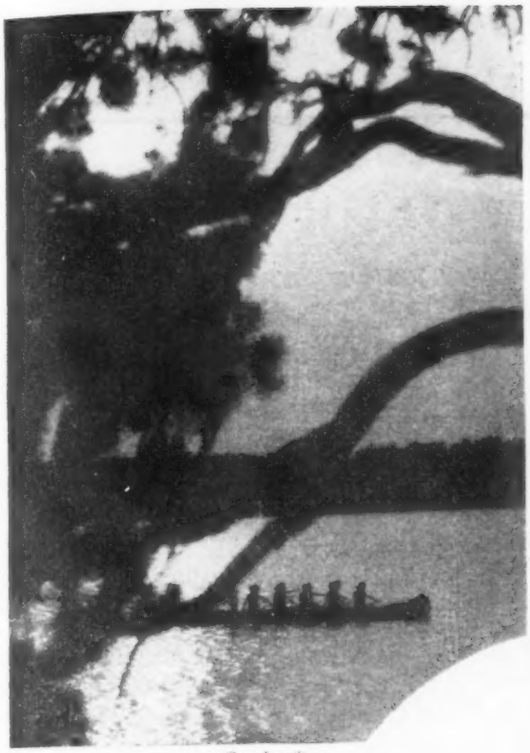
"I asked you how much gas is in that car."

"It's about half full," replied Julian, with a moment to think it over.

"That's more like it. I'm going to take your car," said the man more threateningly, as he made a gesture to his breast, slightly below his shoulder. "Turn it around for me. Get a move on."

Julian climbed into the car, too taken by surprise to tremble greatly, and turned the car. As he was doing so, the man stepped into the cabin, reappearing almost instantly with an evil looking weapon which Julian recognized as a machine gun. "Lissen, you two ain't seen nobody, and you don't know nothing. Understand?" He was now in, *(Continued on page 534)*

It's The "Good Old Summer Time" Again!



Cy. La Tour

INTO THE SUNSET

M. Greenan Photos

WHERE BROOK AND RIVER MEET

TO THE BEACH

Philip D. Gendreau

FORE!

Richard K. Wood

AWAY FROM "THE MADDING CROWD"

Century Photos

AVIATION— From the Medical Point of View

By L. H. BAUER

THE PUBLIC is becoming more and more air minded. Many persons who have never flown would do so if they could be assured of safety. Many now realize that the government requires a certain standard of manufacture and inspection before a plane is licensed to carry passengers and that pilots are licensed only after stringent tests. However, few realize that a careful physical supervision is maintained over these pilots and that there are various grades of pilots. The rating of pilots is important and must be considered before the medical aspect of aviation can be approached.

THERE are four grades of pilots: transport, limited commercial, private and student. Transport pilots are subdivided into ordinary transport and air line pilots. Private pilots include those who are authorized to fly solo or with another licensed pilot and those who are allowed to fly with a passenger, provided the airplane is not for hire. The last subdivision is a recent one. Many accidents occurred because private pilots with a limited flying experience carried their friends. A private pilot with only a few hours of experience in the air is not qualified to carry passengers; hence one should fly only with a transport pilot or a private pilot who has several hundred hours' experience.

Every prospective pilot must be physically examined before entering on his career. After he has passed that examination he must be reexamined every two years until he reaches the passenger carrying grade, when he must be examined twice a year. The U. S. Department of Commerce has recently set up the requirement that all air line pilots must be examined every three months. Some air lines have even stricter requirements.

That such a procedure is necessary is shown conclusively by the statistics compiled by the Department of Commerce. These indicate that only 30 per cent of the physically normal students ever obtain a higher license. These statistics also show that of those with minor physical defects, only 17 per cent were able to progress, and of those with major physical defects, only 14 per cent were able to go on. In a special study of about 300 who were disqualified physically but were allowed to fly, only 4 per cent ever succeeded in obtaining a license.

In another study it was found that the accident rate was far higher, among all grades of pilots, in those whose physical condition in any way deviated from the normal. Therefore the chances of learning to fly decrease in proportion to the seriousness of one's physical defects. Persons who learn to fly in spite of defects are more liable to have accidents than are those who are physically normal.

THE physical examination which the pilot must undergo before he is physically certified to fly or take training differs materially from the ordinary physical examinations such as the examination he gets when he applies for life insurance or when he consults the family doctor. The reason for the difference is that flying induces a stress and strain on the physical make-up which calls for physical qualities seldom required in ground occupations.

A general physical examination is required, and practically all organic conditions, such as heart disease, kidney disease, tuberculosis, thyroid disease and diabetes are disqualifying.

In addition, a careful examination is made of the nervous system. The candidate's past mental and physical history is studied in an effort to determine whether or not he is a steady, intelligent, cool and capable individual. He must be the sort who will react quickly and

accurately in an emergency. Emergencies in the air require split-second decisions. If the candidate is excitable he will probably fail in an emergency, and if he is of the slow, plodding type he will react too slowly to meet the exigencies of the situation. If he is neurotic, the type that has so-called nervous breakdowns, he is an inferior candidate and will never develop into a capable flyer.

The candidate's ears, nose and throat are examined. Diseased tonsils and sinuses are liable to become acutely infected under exposure to cold and fatigue. Chronic catarrhal ear conditions interfere with the equalizing of pressure on the two sides of the ear drums when there are sudden changes in altitude. Sudden, severe pains or rupture of the ear drums may occur. Sufficient hearing must be present to detect radio signals. The sense of equilibrium, which is extremely important, is tested. The air is an unstable medium, and the flyer depends largely on his vision to hold his ship to a level course. His internal ears, his muscles, joints and internal organs also play a part in it.

When a pilot is flying in a fog or above the clouds he is unable to maintain his ship level unless he is accustomed to flying by instruments. This is because he has no horizon by which to guide; hence his eyes are of no use to him, and the sensations he gets from his ears are faulty. If he goes by these sensations he gets into trouble. The successful blind flyer is the one who has learned to disregard his sensations and depend entirely on his instruments. This requires training.

A searching examination is given to the eyes. Normal vision is required in the pilot who carries passengers, and normal vision with correction is required in the private pilot. Peripheral vision, or the field of vision, is tested and must be normal; the pilot must have the ability to see out of the tail of the eye when looking straight ahead. Color vision is important because of colored beacons, field lights, signal lights, signal panels and navigating lights. The ability to detect various shades of green and brown helps a pilot in choosing a suitable emergency landing field.

The coordination of the action of the two eyes is tested. This action is controlled by six small muscles in each eye that work in pairs, or groups, and there should be a certain proportion of strength between the opposing sets or groups of muscles. If this proportion is lacking, fatigue of the eyes, headaches, inattention or carelessness may result. Even double vision may occur under the effects of high altitude or fatigue.

The interior of the eyeball is examined for disease, and finally the ability to judge distance is tested. This is highly important for the pilot, as he has to judge distance in taking off, landing or flying in formation. Military pilots are also tested for their ability to withstand the effects of high altitudes since they do their fighting at high altitudes.

Therefore both commercial and military fliers have to pass rigid tests at frequent intervals in order to hold their licenses. Strict written and practical flying tests as well as physical examinations must also be passed before a pilot's license is issued.

The physical requirements of pilots are much the same all over the world. All authorities are agreed as to what physical qualifications a pilot must have to be a safe flyer. The United States specifies who shall make these physical examinations. The U. S. Army and Navy do not permit their medical officers to examine aviators unless the officers are graduate flight surgeons, physicians who have had a special course of training and experience in aviation medicine. Neither does the U. S. Department of Commerce permit all physicians to make these tests, but specifies that the examination must be made by physicians specially designated as having the requisite qualifications. The reasons for this regulation are that the ordinary physician is not experienced in some of the tests required and that he does not have sufficient knowledge of the effects of flying to interpret the tests.

Aviation medicine has become a distinct specialty. A journal of aviation medicine is published quarterly in this country and there is also one published in Poland. Articles on the subject are written and published throughout the world in medical literature.

An aeromedical association, composed of Department of Commerce examiners and of Army and Navy flight surgeons, fosters the subject in this country. This association is doing much to further the safety of the public in flying.

As a result of the careful inspection of planes and the physical, technical and practical examinations of pilots, commercial flying has been made more than reasonably safe in this country. The last statistics issued by the Department of Commerce show that American lines carried 561,370 passengers in 1934. Air line planes flew 48,786,551 miles, and there were 225,267,559 passenger miles flown. A passenger mile is the equivalent of one passenger flown 1 mile. The number of miles flown for each fatal passenger accident during the last half of 1934 was 5,453,778, and the passenger miles flown per passenger fatality were 26,339,197. Most of the accidents listed in the newspapers occur in experimental work, in student training and because of unlicensed flying which is still permitted in a few states.

If you intend to fly, fly on an air passenger line or with a transport pilot rather than with unlicensed pilots. You can then be certain that every precaution for your safety has been taken.

The Doctor's Scotland Yard

By ROBERT A. KILDUFFE

SO THERE WE ARE OF AN EVENING, COMFORTABLY SPRAWLED IN OUR CHAIRS, THE ROOM SLIGHTLY SMOKY FROM OUR PIPES AND CIGARETS, AND A COLD DRINK HANDY WHERE WE CAN REACH IT WITHOUT MUCH TROUBLE.

CHAPTER I

In Which We Are All Introduced

WITHOUT DOUBT, much that I have set down in these pages will be looked on as exaggerated if not improbable. Indeed, I would myself have been so inclined to regard it except that ample evidence exists to substantiate the events and incidents I have recorded.

That Dr. Trebor has finally permitted me to relate them is, I think, a tribute to my persuasiveness, for he has no interest in publicity, which he regards with an amused contempt. However, he finally gave way after I had persuaded him, as I had persuaded myself, that many of his experiences in the reconstruction of past events, often from the slightest of clues, possessed more than a little interest.

"Oh, all right!" he said. "Go ahead, write about them if you want to. But don't make any more of a melodrama out of it than you can help. And don't make any 'Philo Vance' or 'Reginald Fortune' out of me. In fact, I'd rather you would leave me out of it entirely."

"My dear fellow," I replied. "Even Shakespeare would have difficulty in writing 'Hamlet' without any Hamlet, so . . ."

"Well, any time you begin to feel like Shakespeare," he answered with a grin, "you had better stop in and see me in my office. You're a persistent cuss, so go ahead. But if any one recognizes me in this stuff—supposing that any one ever reads it, that is—just look out!"

"Oh, 'a rose by any other name,' you know," I said as we both laughed.

I hope, by the way, that if any one does recognize "Dr. Trebor" he will keep that fact to himself, for we are really very comfortable in our joint bachelor quarters.

I suppose the best way to begin is to tell how I came to know him.

As a matter of fact, I was hunting for a way to commit murder by poison without being easily found out; which does not at all mean what it sounds like, as I am by way of being, or trying to be, a writer, although I must admit that there is some little difference of opinion about this among the critics.

However, that is how I first came to visit Dr. Robert Trebor in his laboratory; and, incidentally, I came very near finding what I wanted.

Trebor is the pathologist at—well, we'll just say "a hospital." The question I put to him on the occasion of our first meeting was a rather difficult one, as the reports of many a trial suffice to show. Once he was satisfied that the murder in question was a suppositious one for fictional purposes, he became rather interested, so much so that we made an appointment at my rooms to talk the matter over; and an interesting conversation it turned out to be.

We rather took to each other from the start and gradually began to meet rather frequently until, finally, when I found just the quarters I had always wanted and also found them just a bit more than I could handle alone, we joined forces and have, we think, the coziest double apartment any two men ever shared.

We like the same things and, more or less, the same kind of people, so that my friend Inspector Carey of the homicide bureau, whom I first knew as a police reporter and who has often helped me in the matter of police routine, was as much at home with Trebor as with me when he dropped in for a chat and a drink.

Under these circumstances, it was natural that we should talk a lot of "shop"—Trebor, because he was interested in his work; I because he furnished plenty of grist for my mill in addition to being interesting in himself, and Carey because, as he said, he could use a bit of the doctor's brains now and then in his business too.

So there we are of an evening, comfortably sprawled in our chairs, the room slightly smoky from our pipes and cigarets, and a cold drink handy where we can reach it without too much trouble.

Carey and Trebor had been talking one night about gunshot wounds, I think it was, and Carey said: "You know, Doctor, you have the makings of a pretty good detective, yourself."

"Well," replied Trebor, "in a sort of a way, I think you could say that a clinical pathologist is a sort of a detective, if he wants to be."

"But where's your criminal?" asked Carey.

"I think I could answer that one," I volunteered. "Trebor's criminal is disease."

"I can't see you making the pinch or taking it into court," replied Carey. "I don't believe you mystery scribblers could make a story out of him, either," he added, "leastways, not one with any pep in it. I know I wouldn't want to be the detective in it, without any clues or stool pigeons and the force to dig them up for me."

"I always suspected the other fellows did most of your work," said Trebor laughing. "Maybe I'm a better detective than you are at that. At least, I do most of my own work, and some of yours too, sometimes, when I'm answering the questions you bring in here."

"Oh, you have your uses," Carey agreed, grinning back at him. "There's the one who's no good to me," he declared, pointing at me.

By the way, just in case you have never seen the name, as probably you haven't, I am Gavin Holt.

"Who answered your question a while ago?" I shot back at him with pretended indignation.

"What question?"

"About who Trebor's criminal was," I said.

"Just a wise crack," he grunted.

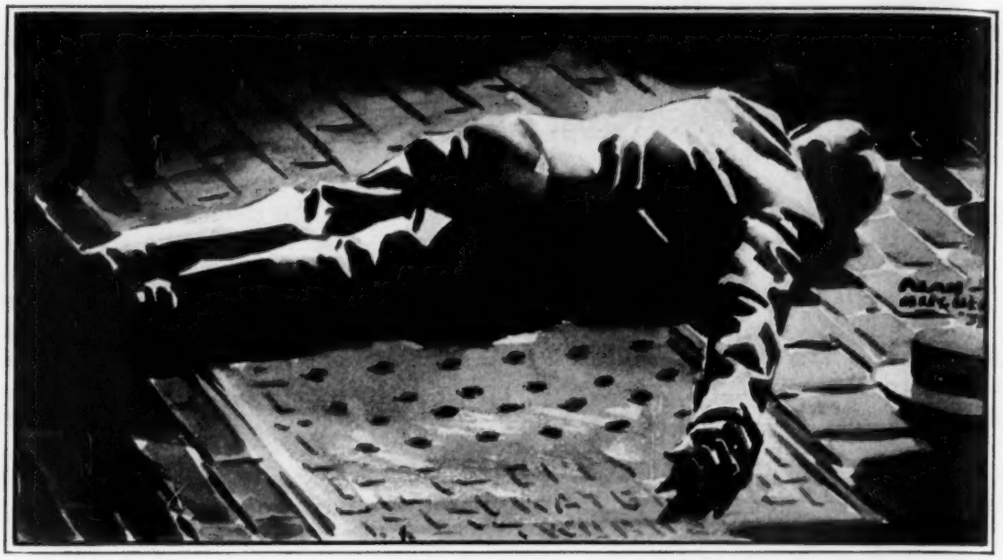
"I don't know about that," said Trebor, settling himself in his armchair. "In olden times they used to personify diseases, you know, and it is not hard to think of them as criminals in a way; that is, if you use a little imagination. In fact, Inspector, if you'll grant me just a little leeway, I think I could get you to agree with me."

"The night's young," Carey replied, "and I've plenty of tobacco, or he has anyway," nodding at me. "Go ahead."

"Well," began Trebor after puffing his pipe to a brisk glow, "the more I think of it, the more inclined I am to see some likeness between the criminals you encounter and the diseases with which we doctors have to struggle. Murder, I suppose we'll all agree, is the most spectacular crime. There is something dramatic in its suddenness alone: a shot, a savage blow—and the victim is dead. There are diseases that act like that. One minute you've an apparently healthy individual, and the next he's gone, sometimes with just as much blood spattered around as the worst mess you ever walked in on."

"Huh!" grunted Carey. "Probably the best you could get with that would be manslaughter or homicide. How about the murder that's worked up to, that's planned and then strikes?"

"I can duplicate that too," replied Trebor. "There are diseases that seem to lie in wait, that sort of prepare the way, so to speak, that lead the victim on and on toward the precipice they have dug beneath his feet and only strike when the time has come. Yes, disease can be very like a murderer. It can strike suddenly and savagely, or it can kill by slow, subtle, insidious poisoning. It can seem just as sly and cunning and vindictive as any of Gavin's villains.



"SUPPOSE CAREY DOESN'T FIND ANY FINGERPRINTS, AND NOBODY KNOWS ANYTHING ABOUT IT? SUPPOSE NOBODY SAW ANYTHING, AND ALL YOU HAVE IS THE FACT THAT A CRIME HAS BEEN COMMITTED?"

"Let's take your thief now," he continued. "What thief is any worse than the disease that slyly steals away a man's health or strength or his mind? What can a thief steal that means more, is worth more or leaves more ruin and unhappiness behind?"

"I never thought of sickness just like that," mused Carey. "No wonder you're interested in disease even though you don't practice medicine."

"Hey! Look out!" I interrupted, knowing that nothing annoyed Trebor more than the assumption that, just because he did not run around looking at tongues and sticking thermometers in people's mouths, he was not just as much of a doctor as those who did. "Carey, you'd better not tell Trebor that just because he is a clinical pathologist he is not a doctor."

"Ah, I know he's a doctor," growled Carey, "and a smart one too, but this clinical pathology business—well, he doesn't write prescriptions or make calls. Say, just what kind of medicine do you practice?"

"You are not the only one mixed up on that," smiled Trebor, for Carey really was a bit embarrassed. "Let me see if I can explain it to you. You know, of course, that the human body is a pretty complicated machine, too complicated for any one man to know everything about all of it. Naturally that makes the practice of medicine pretty complicated too. And just as you would rather be detecting than pounding a beat, though both are police work, so a great many doctors find themselves more interested in one part of the body and its diseases than in another. Consequently they devote their time to learning all they can about that part, and that's specialism. That's why we have surgeons, for example, who are interested mainly in things that can be remedied or at least improved by surgical methods, which really, in the last analysis, are more or less mechanical methods.

"Then, there are the men who are particularly interested in the organs of the chest and their diseases; we often call them internists. And there are the fellows who do only nose and throat work, and those who treat diseases of women, and so on. You fellows know all that, of course?"

We both nodded assent.

"Now, the pathologist," continued Trebor, "is simply a doctor who is interested most of all in a particular phase of this matter of disease, a phase we might define as the study of the causes and the mechanism, as it were, of disease. In other words, he wants to know what causes disease, what its effects are, what results it produces and leaves behind it, and all that sort of thing. You ought to know what a pathologist is, Carey. You've had enough reports of autopsies from them in your time."

"Sure," said Carey, "but . . ."

"Now, wait a minute," interrupted Trebor. "You are going to tell me that those men are working only with the dead body. That's right, and that is what pathology was in the early days: the study of disease and its effects as they are seen and found—now, get this, for it is important—*in the body after death.* That was the simon pure pathologist of olden days, and there are many of them yet, as there have to be, if for no other reason than to teach pathology to embryo doctors.

"Now, I am not only a pathologist but, since pathology has its specialties, too, you see, I am what we call a clinical pathologist. The difference lies in the fact that the clinical pathologist is not only interested in the causes and effects of disease but especially interested in the manifestations of disease, its signs and the results that occur as they are seen in the *living* patient."

"Wait a minute," said I. "I don't seem to get that altogether. It sounds something like a difference without any distinction."

"There's a very big distinction," replied Trebor. "Now, I think you'll both agree with me that no matter how well you may be treated medically, if the treatment is going to do any

good it has to be for what is the matter with you. Am I right?"

"That's sense, all right," said Carey.

"In other words," Trebor went on, "the first thing the doctor has to know is what is the matter. What is the disease this fellow has? That little question is sometimes not at all easy to answer. It's simple enough if you fall downstairs and break your leg. I'll suspect that you might have done so when you tell me you can't use it and when I see that it is all twisted out of shape and when I can feel the break in the bones. That's an easy diagnosis. But suppose you only tell me that you have a pain in your leg; you didn't fall downstairs; nothing has happened to you to account for it, but there's the pain.

"Or suppose it's a fever or a constant headache; the principle's the same. I may be able to think of a lot of things that might cause a headache or give you a fever, but which one of them have you?

"Or suppose, when I see you, you are unconscious and there is no other information to be had? Have you had a 'stroke'; are you in diabetic coma, or is this an attack of uremia? They can't all be treated the same way and, very often, what would be fine for one would be disastrous if you happened to have one of the others. See what I mean?"

"Why, I thought all you fellows had to do was to look at the tongue, take the pulse, reach over the desk for a handful of pills, and after finding out what I liked to do, tell me I must not do it," I said. "I've had that happen to me."

"Yes," said Trebor, "and it happens to a lot of people. But that is not practicing medicine; that's peddling pills. No, a doctor has no spirit of divination. Making a diagnosis is more often a matter of perspiration, so to speak, than of inspiration. Remember, Carey, how you told us once that it was leg work and spade work that solved most crimes, not the brilliant deductions you read about in the books?"

"Yes," said Carey, "and that's right too. You've got to have facts to deduce from, and you get them by digging them up."

"And that's just the way it is in medicine," answered Trebor. "The doctor has to have facts, and often it is far from easy to get them."

"You mean that stuff about what Aunt Mary died of, and whether you had measles when you were a kid?" I asked.

"Yes, even that is of some interest now and then," laughed Trebor. "That's a part of what we call 'taking a history,' and the history is sometimes very important. When the doctor and the police start out on a problem their methods are often quite similar. Take Carey, now. His work begins when some one, any one, discovers that a crime has been committed. That's where the doctor starts too, after disease has done something, or, to keep to our idea, has committed its crime in the patient. Just as Carey starts his investigation by asking questions of every one who may know any answers, so do we, in taking the history. What's the next step, Inspector, in a burglary, for example?"

"Well," considered Carey. "You find out what is missing, of course, and you look over the place they took it from . . ."

"Aha!" I broke in. "Then you photograph the marks of the chisels and the jimmies on the window ledge, discover a flock of excellent fingerprints, together with two cigaret butts in the corner, draw yourself up stiffly and remark to the assembled citizens, 'This here job is the work of Mike the Bite!' "

"Sez you!" said Carey, grinning. "If you were doing it, the best you could do would be to arrest the butler, except that you'd not be likely to get in any place where they had one."

"Time out!" said Trebor, laughing. "Now see how closely the doctor's job resembles Carey's. He has to find out what's missing and look the place over too; that's the examination of the patient. He's looking for the fingerprints of disease, so to speak. Sometimes, just as Carey feels that the job has distinct earmarks of somebody's pet method, so the doctor sees in the patient the marks and habits, that is to say, the fingerprints, of some particular disease."

"But," he went on, "suppose Carey doesn't find any fingerprints, and nobody knows anything about it? Suppose nobody saw anything, and all you have is the fact that there was a crime?"

"And don't you think that isn't a sweet situation!" grunted Carey.

"I imagine it is," said Trebor. "But it isn't as sweet as when you have an unconscious patient, for example, and that's all you have! That's where the doctor goes in for spade work and leg work, so to speak."

"Just how does he do that?" I asked.

"Well," replied Trebor, grinning. "It's a long story, my little dears. But I think I can make it fairly short for you. Now, let me see. You know that disease produces certain effects in the body, such as fever, for example. That is an effect you can detect by putting your hand on the patient or by using a thermometer. In other words, it is an obvious effect that can be readily detected, just as any one knows when he is having a chill. But, in addition to these obvious effects, and sometimes even when they are not present, there are other effects which occur within the body and which cause or represent changes in the function of certain organs or changes in certain constituents of the body. See what I mean?"

"You mean it's the same as with automobiles; one won't run because a truck knocked the front off it, and another because it has a concealed 'short' in the wiring," I suggested.

"That's the idea," replied Trebor. "That's the sort of thing I mean. *(Continued on page 549)*

Medical Men

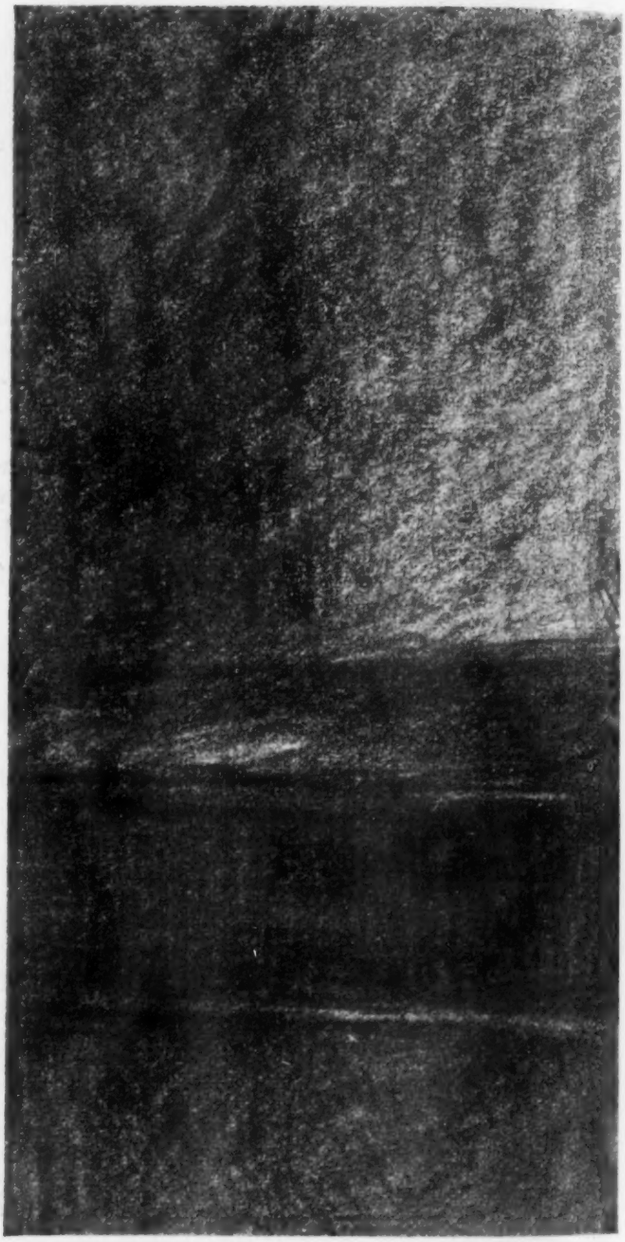
THE DOCTOR has already looked at love, literature, politics and the stock market. Within the past few years it has been quite fashionable to pay attention to his opinions on every conceivable subject. It pleased and startled people to discover that often the surgeon's robe hid a fellow who was passionately interested in Baudelaire; or that yonder stolid internist longed in his secret heart of hearts to run for Congress.

The preoccupation of the doctor with his avocations is a familiar phenomenon. If you run through the list of your medical acquaintances, you will discover it for yourself. As long as eighteen years ago, Fielding Garrison took the trouble to write a story about medical men who had one avocation in particular, music. He demonstrated that, even back in the sixteenth century, the chirurgeon took refuge in melody and harmony when the woes of his profession lay heavily upon him.

The reasons for the doctor's frequent escape into a musical nirvana are self evident. For centuries past, music has given solace to man when he was weary in spirit. And who more than the physician has the right to look for that solace in his brief hours of leisure? It is quite possible that, in this day, his labors have increased and his rewards have diminished. As he relaxes in Symphony Hall, soothed by large doses of Beethoven or Bach, he forgets for a little while that he has to pay the rent next week or that the patient in 14B has little chance to pull through.

THE doctor began to listen to music in Basel many hundreds of years ago. There lived old Felix Plater, physician extraordinary. As a youth, Plater serenaded his sweetheart on the lute, and then used that instrument as the nucleus for a collection that became famous all over the world. The Plater collection, the legacy of an ardent hobbyist, exists to this day.

Observe next the learned Jesuit, Athanasius Kircher of medieval Fulda, who lived from 1602 to 1680. He was medical man, mathematician, physicist, optician, microscopist and orientalist all rolled into one. In 1640 he published at Rome a huge folio which, according to Dr. Garrison, was a "vast summary of all that was known of the theory of music in his time, including the anatomy and physiology of the ear and throat in man and animals, descriptions and cuts of various musical instruments, the science of harmony, the physics of the Pythagorean monochord, symphionurgy or the art of composing melodies, a history of Greek and later music, a long account of chromatics and enharmonics, the theory of time and rhythms in music, . . . canon, and the art of writing for different instruments." It took this doctor 1,200 pages to look at music, and no one had given it such a comprehensive glance up to this time.



In 1679 one Caspar Bartholinus, son of a famous anatomist, left his Danish patients long enough to write and publish "De tibiis veterum," a study of the double flutes of ancient Greece from which so many of the modern wind instruments have derived.

The great Herman Boerhaave of Leyden, illustrious medical teacher and theorist, cultivated chamber music in his solid Dutch house. From 1700 on, when the good doctor was at the top of his stride, he habitually left the lecture hall to revive himself with copious draughts of music. He sang well, played the lute and knew musical theory. He often invited distinguished

Who Have Loved Music

By
ROBERT
POLLAK

THE REASONS FOR THE DOCTOR'S FREQUENT ESCAPE INTO A MUSICAL NIRVANA ARE SELF EVIDENT. FOR CENTURIES, MUSIC HAS GIVEN SOLACE TO MAN WHEN HE WAS WEARY IN SPIRIT. WHO MORE THAN THE PHYSICIAN HAS THE RIGHT TO SEEK THAT SOLACE IN HIS BRIEF HOURS OF LEISURE?

patients to his weekly at-homes. He probably suspected, even at his early date, that mellow harmonies had definite therapeutic value.

THE roll call of well known physicians who paid court to Frau Musica includes further Leopold Auenbrugger (1722-1809), discoverer of percussion of the chest in diagnosis, who wrote a libretto for one of Salieri's operas; Johann Peter Frank, founder of modern hygiene and close friend of Beethoven; John Arbuthnot, personal physician to the poet Pope and prominent hymnologist; Richard Brocklesby, military hygienist, who also suspected that music might help cure certain diseases and wrote a long treatise on the subject, and the famous Edward Jenner, discoverer of vaccination, who performed blithely on the violin and the flute. Jenner, incidentally, studied music with Anne Hunter, wife of the illustrious surgeon John Hunter. The dour John had no taste for music, however, and once kicked a party of his wife's musical friends out of the house so that he could do some home work in peace.

Among physiologists, Helmholtz, Ludwig and Englemann were all musical enthusiasts, and the greatest of these was Helmholtz. He was a performer, a learned connoisseur and literally

the founder of musical esthetics as a science. In the middle of the nineteenth century, musicians were (and they still are, for that matter) painfully indifferent to the physical basis of tone. But not so Helmholtz. For thirteen years he included in his gigantic labors the study of harmony and dissonance, musical temperature, timbre, and the oriental scale systems. In 1863 he brought out "Tonempfindungen," or "Tonal Sensation," a culminating work that is still a classic in its field.

It is curious that many medical men bore a striking resemblance to the composers of their own time. Helmholtz, for example, had one of those massive, broad browed heads of the Goethe-Beethoven type. The facial resemblance between Beethoven, Rubinstein, the anatomist Henle and the mathematician Jacobi is extraordinary. Hyrtl, the anatomist, was the counterpart of Haydn. Carl Ludwig, the nineteenth century physiologist, might have been Liszt's brother. They both have the profile of a gentle hawk. The resemblance most often noted by the amateur craniologists is that of Johannes Brahms to Billroth, his most famous medical friend.

It is this Dr. Billroth who is the prototype, perhaps, of all the medical men who have loved music and made it an essential part of their everyday lives.

Christian Albert Theodor Billroth was born April 26, 1829, at Bergen on the island of Ruegen in the Baltic. His father was a poor country pastor. The blood of the family was a mixture of Swedish and French, and prominent in the family tree was at least one musical ancestor. Billroth's grandmother Wilckens sang beside the great tenor Eunicke at the first performance of Beethoven's "Fidelio." "In this way," Billroth once said, "I am truly a child of music and the stage."

When the pastor father died the family moved to Greifswald on the mainland, and Theodor entered the local gymnasium. He was, like so many other famous men, an indifferent and sluggish pupil, especially poor in mathematics. His bent was all for music, but his mother and the surgeon Baum persuaded him to study medicine. Money was hard to find. His kind but practical mentors didn't want him to turn into a third-rate music maker.

Later study at the universities of Goettingen and Berlin stimulated a fine and sensitive mind and led to his Berlin doctorate in 1852. But all through his university days the thread of music runs heavy and black. He gravitated naturally into musical circles. The pursuit of music as an avocation, he wrote, helped him to regain his mental equilibrium after exciting experiences at the operating table or sick-bed.

Billroth's first professional post of any consequence was as director of a clinic in Zurich. He made it a model of efficiency but somehow, on the side, found time to write musical criticism for the *Neue Zürcher Zeitung*. It was in Zurich, in the spring of 1866, that he met Brahms for the first time. The two men had much in common beside their appearance. Both were North Germans, both viewed life with a species of morose pessimism, and both loved music with fanatic devotion. Niemann writes that Billroth was a very clever pianist and a capable viola player, much better than the average dilettante. He was instantly in demand at the house of Brahms and his friends.

In 1867 Billroth received a call from the Vienna Institute of Operative Surgery to become professor and director. It was an irresistible invitation for a relatively young man. Billroth made immediate plans for transfer to the Austrian capital; and Brahms, now a Jonathan to his David, decided to follow along shortly afterward. It was a significant decision for the world of science and art as well as for them. They were to find fame and honor beside the Danube.

Vienna became the scene of Billroth's professional activities for the remainder of his life. A little while after his arrival, he set himself the gargantuan task of cleaning up the Viennese clinics. The reactionaries howled for his scalp, but his students were with him to a man. He finished his job successfully. As surgeon he invented the two methods of stomach resection that bear his name and are virtually unimproved on to this day. During the hectic period of the Franco-Prussian war he improved arrangements for the transport and treatment of the wounded and served as military physician in the hospitals of Mannheim and Weissenburg.

Both as doctor and as man he has left his mark on the history of medicine. He was a great surgical pathologist, a bold and successful operator and a teacher of teachers. He found time, as the years went on, to formulate and publish a set of standards and a program for university education in the medical sciences, to free nursing from its ancient religious affiliations and to supervise the rebuilding, on modern lines, of the Allgemeine Krankenhaus.

An american student describes Billroth, resident lecturer, in 1868: "Somewhat above the medium height, he has an immense frame with a marked inclination to stoutness, a large head and a good, open, frank, intelligent face. His hair is dark and his eyes a deep blue. As a lecturer his style is conversational rather than forcible; voice and manner are agreeable and he keeps the attention of the class thoroughly aroused. He walks with a slight stoop, his head bent forward."

When Brahms rejoined his friend in Vienna the little Billroth villa in the suburb of Alsergrund became the rendezvous for the leading

musicians of Austria. There Billroth was only a happy amateur among professionals. He used all his free time, in his own overblown prose, "to convert the lucre acquired through the sufferings of humanity into the purest joys." Billroth, Brahms, and Hanslick, fiercest critic of Wagner, made up the most famous triumvirate in the city. The surgeon was never happier than when some work of Brahms had its first hearing at his house. Many of the finest string quartets, vocal and piano duets first beat on the trembling air at the Billroth "evenings."

Billroth's voluminous letters and notes are invaluable to the biographer of Brahms who wishes to view the Colossus of the North in his true light. Says Niemann: "They are the testimony of a highly sensitive and musical aesthetic nature, written under the fresh and immediate impression of Brahms' new creations."

Seven years before his death, Billroth suffered a severe inflammation of the lungs. He recovered, and, to use Brahms' own words, "rose again from his death bed." "But this Billroth," said Brahms, "was no longer his old self, my friend Billroth; he was hardly a shadow of his former self." The words must be taken with a grain of salt. Billroth saw the changes that came over his idol as the years passed by. The innate shyness and reserve of the composer were hidden by a defensive harshness, even an insulting abruptness. Troubled by somber dreams that no mere man could understand, he retired more and more to the privacy of his own thoughts and his own company.

Billroth was hurt and wrote feelingly to Hanslick on the subject. Brahms, too, suffered from the misunderstanding; but both giants were proud as well as inarticulate. Billroth died in Abbazia, on the Adriatic, in 1894. Not till it was too late did Brahms remember their years of unsullied affection and recall ruefully with Hanslick the days of the happy triumvirs. The great Johannes lived three years longer; then he joined the surgeon again. It is pleasant to think that they may be playing piano duets in some Olympian salon.

So You're Going on a Vacation!

Be Sure to Take Along the July HYGEIA

In an article entitled, "If You're Going Swimming," *Dr. George A. Skinner* tells how to remain happy and healthy while enjoying this popular sport. His article contains advice on the sanitation of swimming pools and warnings concerning the dangers of diving and of swimming with the head under water. "Recently tremendous changes in the conditions under which swimming takes place have introduced many dangers hitherto unknown," says Dr. Skinner. "Hence the problem of making swimming safe sport is a large one, and it seems only fair that those who indulge in this sport should realize the dangers and take the precautions necessary to make it as healthful a pastime as it is a pleasant and exhilarating one."

"For the benefit of *Hygeia* readers who may be tempted to ask doctors to prescribe extemporaneously, while on vacation, I am now making out my brief," writes *Dr. Wingate M. Johnson* in "A Doctor's Dilemma," in which he presents a plea for the doctor on vacation and explains the seriousness of the predicament in which such thoughtless requests may place him.

Is your child nervous? If so, you will be interested in reading what *Dr. Francis J. Scully* has to say in his article "The Nervous Child," in which he considers behavior problems arising as a result of this condition. He studies the spoiled child, the obstinate child, the incorrigible child and the maladjusted child, and emphasizes the importance of early training and of a harmonious home life.

In "The Prevention of Mental Disease," *Dr. F. W. Dershimer* gives some startling statistics on insanity and utters a plea to the public to stop trying to hide mental disease until it becomes so severe that it can no longer be hidden.

Among other contributions will be found *Sophia Potgieter's* suggestions for keeping the handicapped child interested and happy so that he may enjoy a sense of freedom from the casts which confine him to his bed or chair. Her article "Recreation for Convalescent Children" brings new and intriguing ideas. . . . *Dr. Harold B. Wood* discusses "That Plaguy Appendix" and reviews the history of appendicitis and of its treatment. . . . "Thomas Tycoon's Tirade" is another of *Dr. W. W. Bauer's* fables in slang. . . . *Doris W. McCray,* who discusses the decisions made by the American Medical Association's Committee on Foods, writes about various salad dressings which have been awarded the Seal of Acceptance by that group. . . . *Dr. Robert A. Kilduffe* records an incident in his new serial "The Doctor's Scotland Yard," in which Dr. Trebor, Inspector Carey and Gavin Holt delve into the mysteries surrounding "The Case of the Gloomy Babies." . . . *Dr. Dennis Kelly* and *Myrtle Meyer Eldred* outline the specific internal causes of infantile eczema. . . . *Dr. Hyman Cohen's* "Eye Book" brings a chapter on glaucoma and other eye diseases in advanced age.

Why the Baby Has Eczema

PART II

IN SUMMER THE SUNLIGHT FALLING ON THE CHILD'S BARE SKIN PRODUCES OR INCREASES VITAMIN D, THUS GIVING THE BODY AN ADDED ABILITY TO STORE THE MINERALS WHICH ARE SUPPLIED BY THE FOODS.

ECZEMA has not only a characteristic appearance and a typical progress from eruption to crust and back again, but also characteristic body sites, which are often rather pointedly significant of the sources of the mischief. The child with allergic tendency who is subjected to a cautious swaddling in wool or other clothing provocative of excessive warmth may develop the rash in the warm, moist portions of the body such as under the knees, at the bend of the elbows or in the axillary folds. These body sites are frequently the only evidences of a chronic sensitivity in the older child who has outgrown his disposition to react by developing a more general rash.

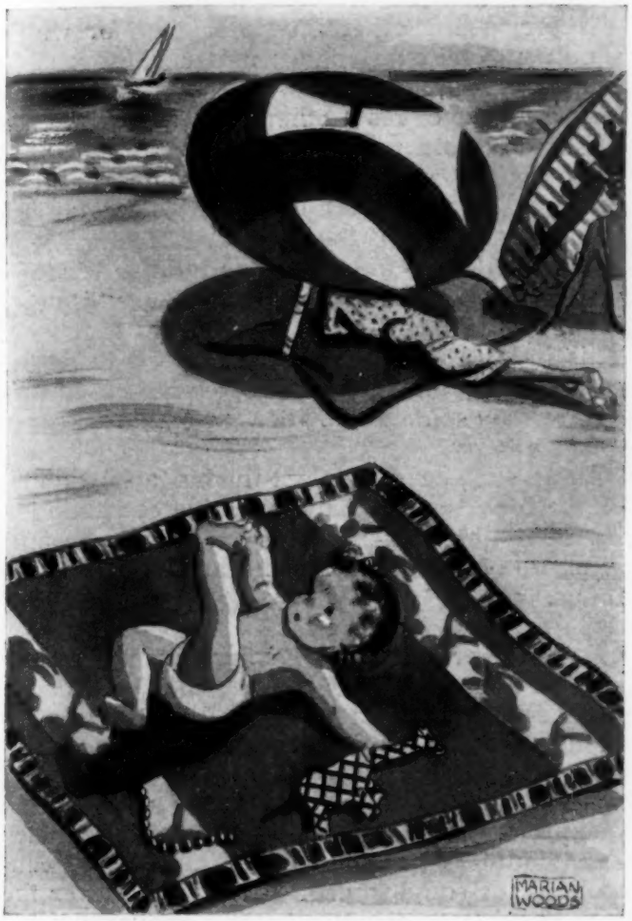
There is a rash that appears frequently in the diaper region. It can be traced directly to the influence of an excessively acid or ammoniacal urine or to acid and excoriating feces. These conditions are secondary causes for skin injury which, if ignored or maltreated, may in time reach the stage of a chronic irritation not unlike a typical eczema.

The most frequent site of eczema is on the head and face. One explanation of this is the greater exposure of the head and face. Another takes into account the greater number of small blood vessels on the face and the rapidity with which they respond by dilatation when the diet is faulty or some external irritants cause skin injury. The eruptions are usually massed about the forehead, the head and the cheeks. There is quite often a noticeably clear area about the nose and mouth.

ECZEMA of the scalp may have its origin in a too hasty washing of the fontanel. However thoroughly the remainder of the head is washed and wiped, the fontanel receives but a hasty and inefficient dabbing. It is quite natural under those circumstances for dirt and oil to collect there. When this local irritation is complicated by baby's faulty diet, the result is an ill smelling, crusty mass which defies the most conscientious oiling and combing.

"Cradle cap" may be a temporary ailment. If it is allowed to persist, this unhealthy condition of the scalp may permit eczema to get a foothold, or rather a headhold there.

The generalized rash that appears all over the child's body has been named erythrodermia desquamativa, meaning an abnormal redness of



the skin accompanied by scaling, such as is seen in scarlet fever or scarlatina.

Hill notes that the general condition of infants with this type of eczema is almost always poor. They may be in a state of marked malnutrition with a case of diarrhea as a frequent accompaniment. There is apt to be a general glandular enlargement. One noticeable characteristic is a constant blueness and coldness of the hands and feet. It is not known whether this bodily condition is entirely a manifestation of allergy. Until more is known about it, it has been included in the classification of eczema.

Even a casual perusal of the histories of children with eczema will convince one of the unquestioned rôle which inheritance plays in the child's predisposition to the disease. The child's mother may be a sufferer from migraine headaches or the child's grandfather from asthma or hay fever, and there may be a sister or brother with a like history of asthma or eczema. It has been computed that about 50 per cent of the eczematous babies have a family history of allergy in this or previous generations. This percentage may increase in proportion to our growing knowledge of allergic ailments.

The sex factor is an unaccountable but decisive one. Twice as many male as female babies have eczema. Some authors make the proportion 3 to 1. No explanation has been found for these ratios.

Race and of course the skin textures that are characteristic of certain races must be listed as outstanding factors influencing eczema. Fair haired, blue eyed children predominate among eczema sufferers.

All extremes of temperature, whether hot or cold, are capable of injuring a delicate skin. Both heat and perspiration are inimical to a healthy skin and may pave the way for an eczematous outbreak.

Mothers are always mystified when their babies react to cold winds by the development of a fine red rash or one burning cheek. The blush tends to disappear in the warmth of the house. This is just another way in which sensitive skins may react to extremes of temperature. It is not difficult to conceive how disastrous might be the effect, if an added burden were caused by faulty diet.

MOTHERS have some control over environmental factors if they will but use common sense, but there are other influences less easily recognized and controlled. These are the physiologic bases for the production of a skin rash.

Mothers are familiar with the necessity for dosing their children with cod liver oil during the winter months. They do this to prevent rickets. Rickets is a disease characterized by soft bones, delayed development of teeth and a general nervous instability which may reach the point of convulsions, or spasms, on slight provocation. Rickets develops because the child is not receiving into his system a sufficient supply of minerals, usually calcium and phosphorus. Milk is rich in these minerals, and it may be that the child is not getting a sufficient supply of milk or of such foods as cereals, fruit juices or vegetables which contain a goodly supply of these minerals; or it may be that he gets enough of the right foods but not enough vitamin D. This vitamin gives the body an added ability to store the minerals supplied by the foods in the bones, teeth and nervous system. In summer the sunlight falling on the child's bare skin produces or increases vitamin D. In winter it is necessary to use foods containing a rich supply of vitamin D in order to make up for the lack of sunlight.

It is believed that the baby with eczema has the same inability to store minerals as the

By

DENNIS KELLY

and

MYRTLE MEYER ELDRED

baby with rickets. The same type of vitamin D medication is in order. It remains for the attending physician to decide which one of the vitamin D preparations is best suited to the small patient.

A nervous instability is a noticeable characteristic of the child with rickets. He tends to be irritable; he cries easily, sleeps lightly and may have convulsions because of food indiscretions or at the appearance of each tooth. In addition the baby with rickets perspires profusely about the head even in the absence of extreme heat or heavy clothing. This tendency should be recognized as one indication of a calcium deficiency. Profuse perspiration about the head and face, which may have been caused primarily by this lack of lime, acts in its turn to irritate a sensitive skin, thus completing the circle. It does not seem illogical to think of eczema as a probable result.

It is believed that the inactivity of the thyroid gland, because of its influence on the condition of the skin, has a definite relation to certain types of eczema.

The thyroid gland sits astride the windpipe. If the gland is not active enough in producing a secretion, adults may suffer from goiter. In infancy the effect of an inactive thyroid gland is to inhibit mental and physical development.

The baby with a thyroid deficiency has an unusually flat nose. He has a tendency to sleep most of the time and is uninterested in food. His tongue is noticeably thick and round and tends to protrude between his lips at all times. The skin is waxy; the eyelids are thick, and the eyes are watery. The baby drools constantly, probably because of the open mouth. The eyebrows and eyelashes are short and scanty, and the nails are brittle. Such a baby develops slowly, teethes late and shows none of the usual signs of mental alertness. The trunk develops more normally than the extremities, which remain short.

Such children usually attain about a two year growth and then stop growing. If the deficiency is pronounced, and even if growth takes place and the child lives to adulthood, he is a strange and terrifying sight. The failure of the long bones to grow results in short clubby fingers and toes, a thick torso and short legs and arms. The hair of the skull is thin and dry and may fall out in patches, leaving the skull shiny. The habit of drooling is characteristic of the type called the cretin. Thyroxin, if given continuously, stimulates the child to develop normally, both physically and mentally. Such children can be educated within limits and may grow up to seem like normal people, so long as they have the benefits of the gland secretion.

The condition described is the exaggerated result of a marked glandular shortage. There are many degrees of glandular deficiency. The child's only indication of a probable thyroid insufficiency may be colorless hair of a brittle texture and a dry and harsh skin with a tendency to show eruptions. Eczema in a child of this type may be materially improved by the administration of thyroid extract.

There is one other physiologic factor which should not be overlooked; that is the probable food sensitization with which a child may be born because of his mother's unwise indulgence in some certain food during pregnancy.

Mothers are still the victims of countless advisers whose intent is harmless but whose counsel is not. It is the ever present "they" who have encouraged the mother to indulge her food whims, however ridiculous, on the premise that if she wants a certain food, she ought to have it. This indulgence has been discovered to be the cause of inexplicable cases of eczema, and it is believed by some authorities to be the real cause of all allergy.

In all such cases it is not the irritating quality of the food itself but its excessive consumption by the mother which causes the baby to become sensitized to that food and, because of it, to other foods.

One mother admitted having eaten seven or eight bananas a day during her pregnancy because she had an uncontrollable desire for them. Later, when her nursing baby broke out in a rash after his first indulgence in bananas, she took counsel with her doctor and confessed her prenatal banana orgies. During pregnancy most mothers have a desire, rampant or controlled, for some unusual food. Whatever the source of such whims, these discovered facts should convince the mother that it is good sense to suppress her food whims and eat moderately, rather than ravenously, of any one food during this important period of her life.

The part that eggs may play in the production of eczema is explained by Dr. Lewis Webb Hill in "Infantile Eczema," an article published in *The Journal of Pediatrics*, February 1933.

Dr. Hill believes that the protein of the egg is easily absorbed, unchanged, through the intestinal wall. It does not need to be eaten in large amounts in order to get into the general circulation. He points out that almost all cases of infantile eczema develop in the baby who is too young to have eaten eggs. Furthermore, he contends that older infants who have eczema are seldom cured by having eggs removed from the diet. He believes that babies are sensitized to eggs before birth. This hereditary sensitization may be the cause of their whole allergic make-up which brings about the development of eczema when the infants are fed other proteins.

[Note.—Part 3 of this series will appear in the July issue. Various foods which may cause infantile eczema will be discussed together with other specific internal causes of the disease.]

WHY WORRY?

An Article in Which JOHN P. KOEHLER Tells When and When Not to Worry About Health

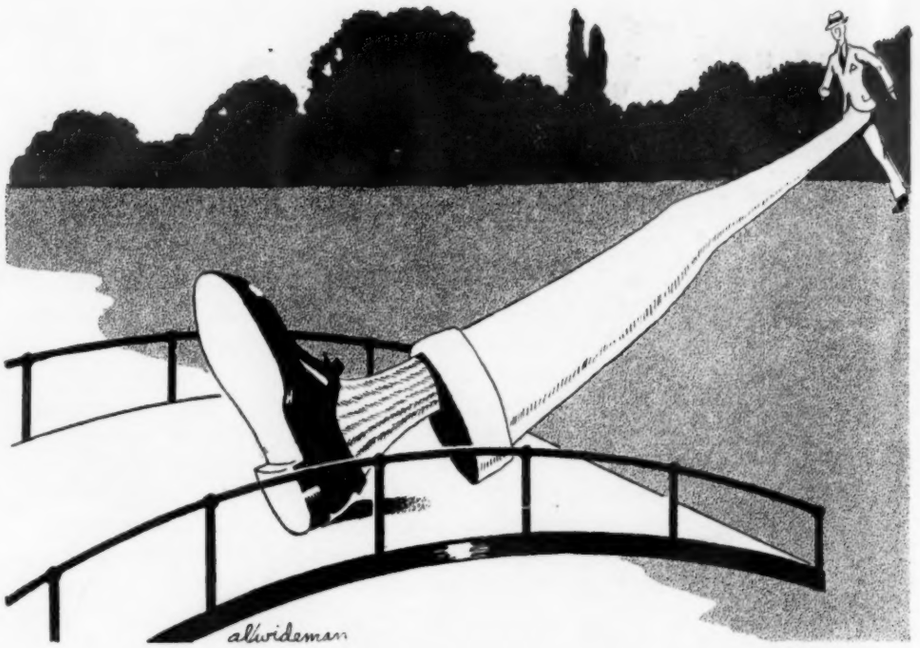
UNNECESSARY WORRY ABOUT DISEASE SHOULD BE FOUGHT AS BITTERLY AS THE DISEASE ITSELF, FOR WORRY WILL ONLY LOWER THE RESISTANCE. A LITTLE MORE WORRY AT THE RIGHT TIME AND A LITTLE LESS AT THE WRONG TIME SHOULD CONTRIBUTE MATERIALLY TO HEALTH AND HAPPINESS.

IT IS generally accepted that there is a time for everything. A time to worry is no exception. According to the dictionary, to worry is "to feel or express great care and anxiety." This expression of great care and anxiety may be beneficial at times and extremely detrimental at other times.

Some persons worry too little and others too much. Every one should worry enough to become cautious and discerning, but none should worry when worry will do more harm than good. There are many things about which one may worry. Business, finances, family affairs and health all concern every one sufficiently to cause a great deal of worry. During the last three or four years, few people have been able to escape financial worries. Financial worries are the source of many other worries. While too much worry, regardless of the cause, is detrimental to health, it is not my purpose in this article to analyze some of the more common worries but rather to limit the discussion to the necessary and unnecessary worries associated with one's health.

The title of this article implies that there are times when it is not only justifiable but even desirable to worry about one's health. There are some individuals who do not believe in worrying about anything. Optimism is a desirable trait, if it is based on experience and reason; but it will sooner or later lead to disaster if, like the proverbial house, it is built on sand.

That "ignorance is bliss" may be a pleasant philosophy for those who are able always to



THE ADVICE, "NEVER CROSS A BRIDGE UNTIL YOU COME TO IT," IS DANGEROUS TO FOLLOW WHEN IT CONCERNS FUTURE HEALTH, FOR IF WORRY IS TO BE BENEFICIAL, IT MUST BE UTILIZED BEFORE AND NOT AFTER THE APPEARANCE OF ILL HEALTH.

remain ignorant, but it is a deceitful soporific for those who awaken and learn too late. Worry, like many other human characteristics, has its assets and its liabilities. Its value or harm should be determined more by its use than by its literalness. It therefore becomes essential to know when and when not to worry.

AT WHAT age periods, if any, should people worry the most about their health? One might pick out the years when disease and death rates are the highest. This would be a mistake, because it would be of no avail to worry after reaching the danger zone. It might even do some harm by reducing the resistance against the very diseases dreaded. The time for men and women to worry about their health is not at the age when diabetes, kidney disease, high blood pressure and heart disease are the most prevalent but rather many years earlier, when worry about their future health will induce them to take the necessary precautions for the prevention of these ailments.

The time to worry about diseases that attack people in later life is the period between the ages of 15 and 21 years. A large percentage of men and women lay the foundation of their future health during these years. Habits and practices which will sooner or later be responsible for either good or bad health are developed by young men and women before they become of age. Members of the younger generation who believe that all moral, medical and health advice can be ignored as long as it interferes with their natural desires and alluring pleasures are the ones who have reason to worry about their health. When at the age of 25 or 30 years they learn that they have tuberculosis or at 45 or 50 that they have heart disease and high blood pressure, it will not help them nearly as much to worry about their health as it would have helped if they had worried a little more about their health during their younger days.

Nearly all parents worry a great deal about the health of their children, but most of them worry at the wrong time; namely, when their children are ill. The time to think and worry about a child's health is not only before he is sick but even before he is born. Young men and young women should think seriously of the health of their future offspring before they marry, since the health of many children is determined by the health of their parents. Future parents who do not want to worry about frail, anemic, handicapped children should do a little more worrying about their own health before they assume the responsibility of matrimony and parenthood.

It is also somewhat late for parents to worry about the health of their children after they have been exposed to smallpox and diphtheria. If mothers worried more about these diseases, they would undoubtedly take their children during infancy to their family physician for preventive treatment.

THE time for a husband and wife to worry about each other's health is not when one or the other is in a hospital or sanatorium but when either one, for economic, business or social reasons, is not obtaining sufficient mental and physical relaxation or regular medical supervision.

An ordinary cold is something that most people do not worry about sufficiently. When such a cold, through neglect, develops into pneumonia, worry will not be of any benefit and may even be harmful by lowering the patient's vitality.

There are, undoubtedly, many other times when worry might be quite desirable. It must be admitted that if worry is made use of at the

proper time, it will prevent or at least postpone many of the dangers that are feared. If worry is to be beneficial, it must be utilized before and not after the appearance of ill health. The advice, "Never cross a bridge until you come to it," is dangerous to follow when it concerns one's future health. It is important to know when to worry but even more important to know when not to worry. Worry may be detrimental to health by interfering with one's appetite, digestion, sleep and many other vital psychologic and physiologic functions.

It is frequently true that the more one hears about diseases, the more one worries about them. When medical students learn of the many and various diseases pathogenic to man they are apt to become conscious for the first time of certain disease symptoms. Many persons worry exactly in the same manner when they read or hear of the numerous symptoms mentioned in "patent medicine" advertisements. Scores of people worry about kidney disease when they have a pain in the back. Patent medicine advertisements claim that a pain in the back means kidney disease when, as a matter of fact, few kidney ailments cause a backache. A pain in the back, in the neck or any other place may be something to worry about, but the cause and seriousness of such a pain can be determined only by a thorough medical examination.

In order to frighten people, most patent medicine advertisements mention various symptoms which are experienced occasionally by every one. Who does not often feel tired in the morning or nervous in the evening? What stomach does not feel distended after a hearty meal? Nearly every one has the so-called catarrh although no one knows what is meant by it. Constipation is the universal ailment that feeds and grows on widely advertised laxatives. These various symptoms, which are almost normal with many people, are the ones on which fraudulent medical advertisements attempt to capitalize by alarming the gullible public. One way to escape unnecessary worry about one's health is never to read or listen to patent medicine advertisements.

One age period that produces more worries than any other is the period between 45 and 55 years. Men and women at this age are apt to worry about everything except the things about which they should worry. If, after a thorough examination, a capable and conscientious physician informs them that they have nothing to worry about, they are liable to become dissatisfied and change doctors.

After the age of 40, men and women should have annual or semiannual health examinations by competent physicians and have such physicians do the worrying for them. One ailment which many older people worry about and which is made worse through worry is sleeplessness. As a rule, sleeplessness, in itself, is nothing to worry about unless it does cause worry. In order to maintain health, it is not absolutely necessary to sleep like a 2 year old every time one goes to bed. Even when people lie awake most of the night, they will gain a great deal from the rest and relaxation, provided they do not worry about their lack of sleep.

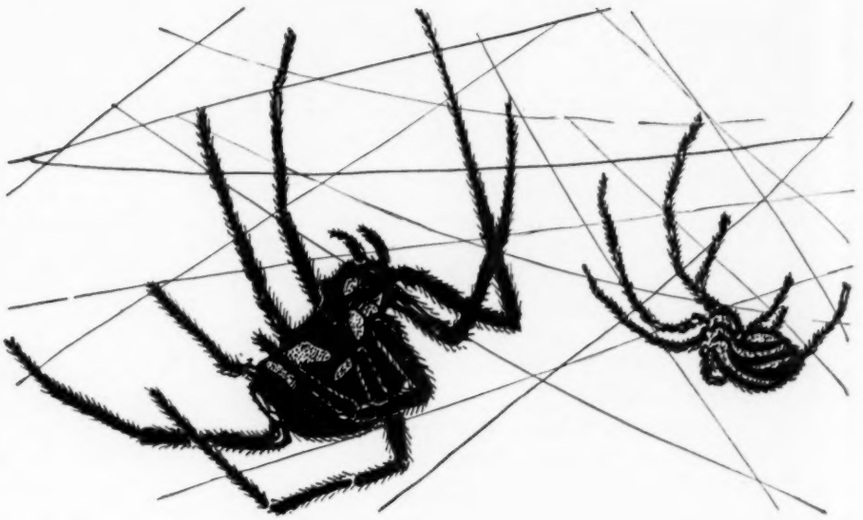
Another health factor which in many instances causes too much worry is heredity. Persons with a family history of tuberculosis, cancer or nervous diseases are prone to worry too much about their health. None of these diseases is hereditary. Even though there may be certain family tendencies, they can usually be overcome by sane and healthful living. Unnecessary worry about one's heredity is exceedingly detrimental to health and must be avoided. Many persons worry a great deal about certain ailments instead of having such ailments cured. Some men will suffer both mentally and physically for years on account of a hernia instead of having such a hernia removed through an operation. Many women would rather worry themselves sick about some slight ailment than face a minor operation. Many men and women are continually worrying about their defective teeth, tonsils, appendixes, gallbladders and stomachs, and yet they do nothing about it.

On the whole, it is much better to worry a day or so before an operation than to worry for years about the need of an operation. Sick people should not worry. Patients with tuberculosis should remember that tuberculosis is nothing to worry about if it is treated properly and early. Worry will only lower one's resistance against disease. Even cancer is no longer incurable if it is diagnosed and treated early. People with any signs or symptoms of disease should consult a physician without delay. There is nothing gained by waiting except a great deal of unnecessary worry. People either have or have not certain diseases concerning which they worry. If a medical examination proves that their worry is unfounded, they may rejoice; and if the physician does discover some evidence of disease, they have reason to be grateful for an early diagnosis, which is more than half the battle against disease.

Knowing when and when not to worry about one's health is exceedingly valuable if the knowledge is intelligently utilized. The healthful and most sensible thing to do is to worry more about those health factors that are controllable and less about those that are beyond control. Unnecessary worry about disease should be fought as bitterly as the disease itself. A little more worry at the right time and a little less at the wrong time should contribute materially to every one's health and happiness.

The BLACK WIDOW

By W. H. Michael



THE BLACK WIDOW, LATRODECTUS MACTANS, IS THE MOST POISONOUS SPIDER FOUND IN THE UNITED STATES. SHE IS EASILY RECOGNIZED BECAUSE HER BODY IS COAL BLACK WITH RED OR YELLOW "HOURGLASS" MARKINGS. THE MALE IS MUCH SMALLER THAN THE FEMALE, IS NOT POISONOUS AND IS BRILLIANTLY STRIPED. (THE ILLUSTRATION SHOWS THE FEMALE AND THE MALE ABOUT THREE TIMES AS LARGE AS THEY ACTUALLY ARE.)

THE PATIENT'S congested, blotchy face bespoke terror. His limbs trembled. His cheeks twitched. Cold sweat dropped from his brow.

A medical officer of the Naval Hospital on his morning rounds fixed the poor sailor with a suspicious eye. The doctor had seen faces like that before. It was the first Monday after pay-day. In the doctor's mind the diagnosis was already made.

"What's the trouble?" he inquired affably.

"My hips hurt something terrible," stammered the victim, "but the worst of all now is that the soles of my feet are on fire."

"Alcoholic neuritis, and on the edge of delirium tremens," thought the doctor, "though that burning of the feet doesn't exactly fit the picture."

"When did the trouble start?" he asked.

"Last night after a spider bit me."

The physician's eyebrows went up. He suppressed a smile as he said, "Was it one big one or hundreds of little ones?"

The patient looked puzzled. "I didn't see him at all," he answered, "until I lit a match and looked for him."

The doctor's ready-made diagnosis began to weaken. Trying to save it he asked: "Let me hear you say truly rural."

The bewildered patient obeyed. His voice trembled, but there was no trace of the slurring speech of the alcoholic. The diagnosis was wrong. The physician, making a fresh start, drew out the story:

"I live outside the Naval Station in the outskirts of the town. At about 10 o'clock last night, as I rose from the seat of my outdoor privy, I felt a burning sensation. I lit a match and found a big black spider hanging in a web under the seat. In five minutes, pains shot up each side of my belly. I gasped for breath. I yelled for a neighbor who drove me here to the hospital. When I arrived, about twenty minutes after being bitten, I was completely collapsed and unable to move. I wasn't exactly paralyzed, but I had no strength.

"Then the pains moved up around my chest and down the outsides of my thighs and legs. . . . No, it's not tender; it just hurts. I'm sure I would have died, if I hadn't got to the hospital right away. I vomited all night, and the soles of my feet began to burn more and more. I feel terrible."

THE doctor noted that the patient had been given morphine for his pains during the night. The red spot where the patient had been bitten had already almost faded out. More sedatives were ordered, and the fluid lost by vomiting was replaced by salt solution containing sugar. The burning feet were treated with baths, but, as the patient expressed it, for two days and nights he felt as though he were "standing in red hot grease." It was three days before he could retain anything by mouth.

When his feet began to "cool off," his legs and arms broke out in a fine, spotted, itchy rash, which was only slightly soothed by lotions. On the fifth day, in spite of the rash, which still persisted, he felt well enough to wreak his vengeance. He went home, upset his outhouse and triumphantly brought back the spider in a jar. It was the Black Widow, Latrodectus mactans, the most poisonous spider in the United States. It was coal black, like a big, shiny shoe button, and it had a small cephalothorax, or

head-chest, and a large round abdomen. On the lower or ventral side of the abdomen was the scarlet "hourglass" marking, which only a moderate imagination could make into "cross bones stained with blood."

The widow is a big spider. Her body averages about ½ inch in diameter, and the spread of her eight legs is almost 2 inches. The distinctive shiny black color and bright red trimmings, which vary considerably in form, make her easy to recognize. The feminine is used advisedly, for, as in several varieties of animals, the female alone is dangerous.

LIKE a true *femme fatale,* she is nocturnal in her habits. Hence most victims are bitten at night. She likes shady places and is often found in outbuildings, but her preferred residence is the "specialist" type of privy, the old-fashioned outhouse. Her preferences account for the usual anatomic location of her bites and the predominance of the number of male victims, 80 per cent.

California and Florida are rivals for first place in the number of bites reported. The pest, for the widow has really become a pest, is less common as one moves east and north, respectively, from the rival states. Pennsylvania seems to be her last outpost.

More than 300 bites and a score of deaths have been attributed officially to the Black Widow. In addition, there are undoubtedly many unrecorded cases and deaths, because the pain of the bite itself is not great, and the local reaction quickly subsides. Often in the dark the bite is mistaken for a splinter. The abdominal pains and vomiting, symptoms which are also evident in appendicitis, have caused the removal of many an innocent appendix.

Some one has facetiously remarked that the effective remedy is to be bitten and to get over it, if you do. It is true that by so doing you are immune and your serum becomes an antitoxin. You also become a benefactor if any one in the neighborhood is bitten. Your serum must be given at once to be of value. It is understood that such serum is available at the Los Angeles General Hospital.

Research reported in the *Naval Medical Bulletin,* October, 1932, showed that if an animal is injected with the macerated spider, the animal is not poisoned; but if it is stung, it may die. This indicates that the spider contains an antitoxin against its own poison. It also suggests the temerarious therapy of injecting the macerated spider. It might work!

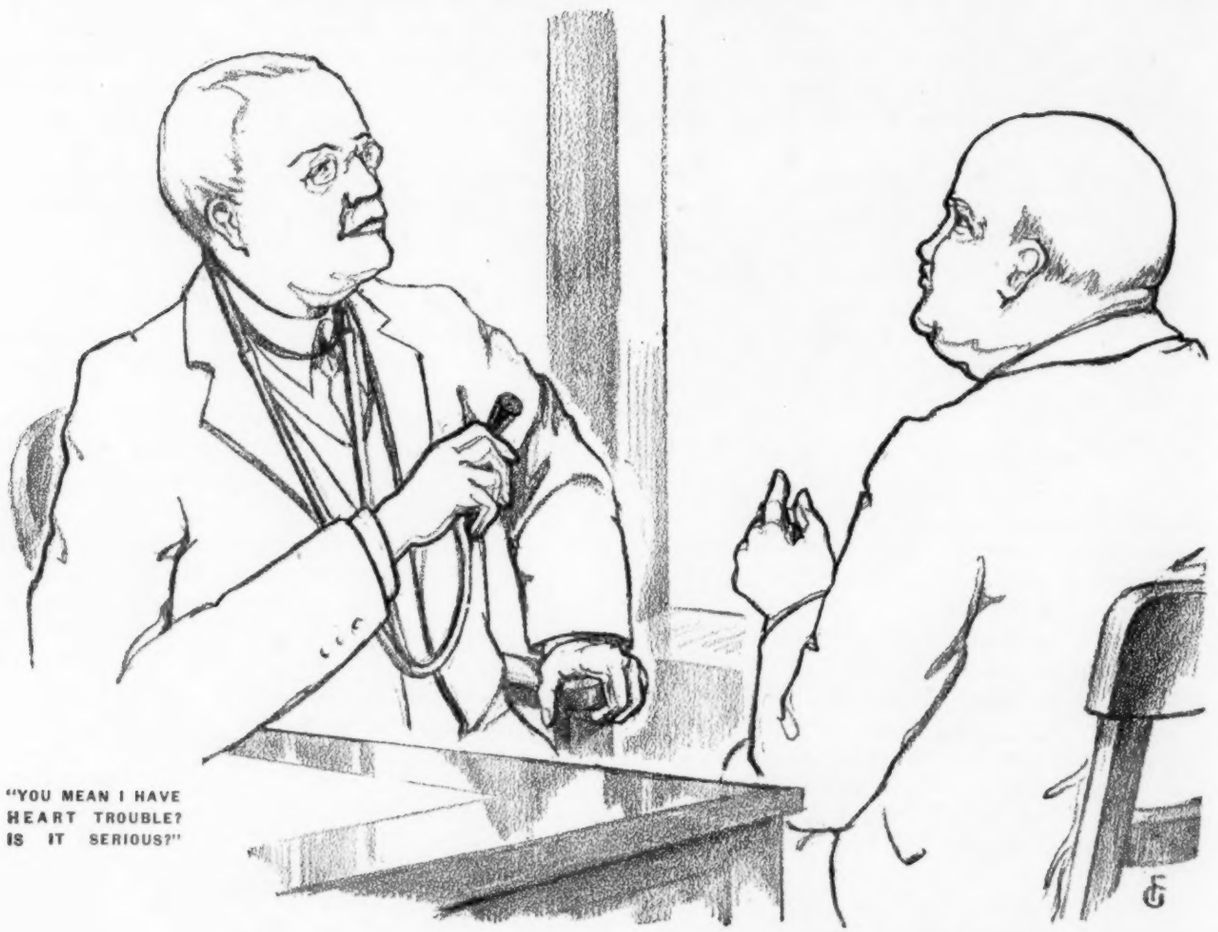
Practically, since serum is rarely available, the treatment consists in sustaining the patient, calming his pains and replacing the fluids lost by vomiting.

But war on the Black Widow is the real solution. The first attack should be on her favorite trysting place, the old-fashioned privy. We could forgive her eating her husband, as is her habit; we might even overlook a few of her venomous bites, if she becomes, as well she may, a potent factor in the modern sanitation of our Sunny South.

ON THE FIFTH DAY, DESPITE THE RASH, WHICH STILL PERSISTED, HE FELT WELL ENOUGH TO WREAK HIS VENGEANCE. HE WENT HOME AND RETURNED TRIUMPHANTLY WITH THE SPIDER.

Eavesdropping on the Doctor

By HENRY F. STOLL



"YOU MEAN I HAVE HEART TROUBLE? IS IT SERIOUS?"

ACT I

DOCTOR:

Who is the next patient, Miss Adams?

MISS ADAMS:

Tom Smith has just come in to find out about his x-rays.

DOCTOR:

Oh, yes! Have we the report yet?

MISS ADAMS:

Yes, it came this morning; here it is.

DOCTOR:

Hm! Just about as I expected. Show him in, please. . . . Good morning, Tom. Won't you sit there, please?

TOM:

Say, Doctor, what did the x-rays of the stomach show? Have I got a cancer? Tell me the truth, I can take it!

DOCTOR:

No, you haven't a cancer; in fact your stomach and intestinal tract are perfectly normal.

TOM:

But I have no appetite, and I'm so weak! Why, gosh, I'm ashamed of myself! I'm losing weight all the time, and I often vomit. Doesn't that mean stomach trouble?

DOCTOR:

Not necessarily. When you were here the other day you mentioned a cough you had.

TOM:

Oh, that was a stomach cough. Father had it, and so has my brother Joe; come to think of it though, I hardly ever vomit except after coughing. Funny, ain't it?

DOCTOR:

That is not uncommon in certain conditions. You haven't asked me about the x-rays of your lungs.

TOM:

Oh, I know they were sound! You see, I passed an examination for life insurance a few months ago, and I don't mind telling you that I just hated to pay for that chest picture when it wasn't necessary.

DOCTOR:

I wish you were right, Tom, but you aren't.

I felt pretty sure from my examination the other day that you had a spot on your lung; and the x-rays show that you have a little tuberculosis. It's not very extensive, and I am sure you can get well, though it's going to take a little time.

TOM:

Do you mean I have the "con!" Why, that's as bad as cancer!

DOCTOR:

Oh, no, I wouldn't say that. As a matter of fact, the outlook for recovery in tuberculosis is much more favorable than in many of the chronic diseases. Even patients with advanced cases often get well under the newer methods of treatment, and your case isn't extensive. If you and your wife will come in tomorrow, I will go over the situation with you as there are many things to consider. And, by the way, your brother with the "stomach cough" and the other members of your family should be examined also. Now remember, Tom, you're going to get well, and tomorrow we'll have a family conference and arrange the details. I'll expect you at 3 o'clock.

(Tom exits with a rather dazed expression.)

ACT II

MRS. JONES:

But, Doctor, if the x-rays show no evidence of ulcer of the stomach, why is it that I vomit and feel nauseated? Do you think I'm just nervous and that I imagine my symptoms?

DOCTOR:

I'll answer your last question first. I definitely do not think that you imagine your symptoms. You are sick, but you have no disease of the stomach.

MRS. JONES:

But why am I sick to my stomach all the time, and why do I feel so full? Doesn't that mean stomach trouble?

DOCTOR:

During that unusually warm spell we had last spring you probably noticed that your car didn't pick up as quickly as usual, didn't you?

MRS. JONES:

Why, yes, but what has that to do with . . .

DOCTOR:

Just a minute, please! I happened to see you at Bill's garage, and he was examining the carburetor. Did he sell you a new one?

MRS. JONES:

Of course not, he adjusted the one I had. He said the mixture was too rich.

DOCTOR:

Exactly! The carburetor was normal but wasn't functioning perfectly, and all that was needed to make it as good as new was a simple adjustment.

MRS. JONES:

Do you mean, Doctor, that I have a vertebra that needs adjusting?

DOCTOR:

No, you need a mental, not a physical, adjustment. Now I happen to know that your husband's mother lives with you; and though you haven't told me, I know she is a very strong willed woman who has always dominated your husband. She would like to run your home just as she did her own, a not uncommon trait, unfortunately, in mothers-in-law. When you and Mr. Jones were away on that cruise last winter, you ate everything, didn't you, without vomiting? In fact, you didn't have any nausea, and you enjoyed your meals, didn't you?

MRS. JONES:

Yes, that's true. But why do I become nauseated at home just as I am about to go to the tabie?

DOCTOR:

Oh, that's easy to explain. Many organs of the body under intense emotion either stop working or function poorly. In your case, you know your mother-in-law will make some sarcastic remark about what she calls your gadding about or will criticize your lack of control over the children or your lack of sympathy for her lumbago. Your whole nature rebels. You wish you might rid yourself of this unpleasant annoyance. Vomiting is the most primitive means of ejecting what we dislike. Why, you would vomit up your mother-in-law if you could!

MRS. JONES:

I really believe you are right! When Mother Jones visited her daughter last summer, I felt fine. Well! I'm mighty glad to know I haven't ulcers or anything serious. You know, it must be mighty hard for Mother Jones to live with us in our small house when she had her own home for so many years! Well, goodbye. You've certainly helped me.

DOCTOR:

Goodbye, Mrs. Jones! Come in next Monday. *(After the door closes, he turns to Miss Adams.)* Kindly phone her husband to drop in on his way home. I may be able to help that situation. Now send Mr. Brown in, please.

ACT III

MR. BROWN:

You see, Doctor, my stomach trouble all began with an attack of acute indigestion on my sixtieth birthday a few weeks ago—sort of an attack of ptomaine poisoning, I guess.

DOCTOR:

Tell me about it please.

MR. BROWN:

I was feeling particularly fit and ordered some oysters, though it was May. I should have known better of course—no "R" in May, you know. During the meal I felt a severe pressure high up in my stomach, just below the breast bone. I knew it was gas, but I couldn't

raise it. I left the table, felt very weak and was hardly out of the room when I vomited. After emptying my stomach I felt better, so then I knew it was acute indigestion; but the pressure returned, so I stayed in bed a week.

DOCTOR:
And since that time?

MR. BROWN:
Oh, I've been all right except for the gas pressure especially after meals.

DOCTOR:
Well, how's your wind?

MR. BROWN:
I was going to speak of that. Since the attack, it has been rather poor, and when I walk the pressure is worse. Do you think it is catarrh, Doctor, or am I bilious and do I need calomel? How's my tongue?

DOCTOR:
Hm! Your tongue's all right, and you don't need calomel. Besides, from your examination I'm sure your symptoms are not due to stomach trouble; in fact the attack of acute indigestion was really one kind of heart attack. Quite a common kind, as a matter of fact, due to the shutting off of the circulation to a small part of the heart muscle.

MR. BROWN:
Do you mean I have heart trouble? Is it serious?

DOCTOR:
Yes, you have a form of heart trouble that is serious; but a great many people recover and live for many years.

MR. BROWN:
Well, what must I take?

DOCTOR:
It isn't a question, primarily, of taking but rather of doing. Or, to be more exact, of not doing. For a few months you will have to lead a life of idleness with little physical exertion. At the end of that time you can probably begin to exercise, and ultimately you can lead a relatively normal life. I'll write detailed directions. Remember, go slowly!

MR. BROWN:
Goodbye, Doctor, and thank you for your frankness. I'll take it easy. *(Exits.)*

DOCTOR:
I'll dictate that letter to Mr. Brown's doctor, Miss Adams. It's interesting, isn't it, that the last three patients this afternoon complained of stomach trouble but not one of them had trouble with his stomach. It shows how misleading symptoms may be.

MISS ADAMS:
I'd say it's mighty risky to diagnose your own case and then go to the drug store and get some medicine for a stomach pain!

(Curtain)

COUNTRY DOC (Continued from page 512)

using one arm a bit awkwardly, Julian thought. "Start down the lake and keep walkin', and don't turn around."

And they did exactly that, being in their right minds, not speaking at all. "I heard the car pull out," said Will after a bit, out of the corner of his mouth. But for safety's sake they walked on, looking around stealthily after a few moments and then more boldly. "He's gone."

And he was, as they saw when they looked more fully. "He's some kind of robber. We've got to notify somebody and help catch him," asserted Julian, his indignation rising, now that he was safe.

"Let's run out to the road and stop somebody," said Will. "There'll be somebody along." And they started to run, a bit trembly in the knees. "I'm shaking all over."

"So'm I," admitted Julian.

They ran a short distance, talking back and forth as best they could while running, but not for long.

"Stop. Hands up!"

They stopped in their tracks, seeing no one at all for a moment; and then three or four men rose out of the ground, evil looking men, or so they seemed. "If you move, we'll shoot. What you runnin' for?"

"We wanted to get to the road."

"What did you want to get to the road for?"

"To find somebody. Somebody has stolen our car."

"Who are you, anyway?" the leader asked, a bit less severely.

"I'm Julian Richey from Millersville. My father's a doctor there. My friend is Will Sawyers from there too."

"I expect that's right," said one of the men. "I've heard of Dr. Richey. You can put down your hands. What kind of looking person stole your car?"

They described him, the men glancing at one another significantly. "He seemed lame in one arm," Julian finished.

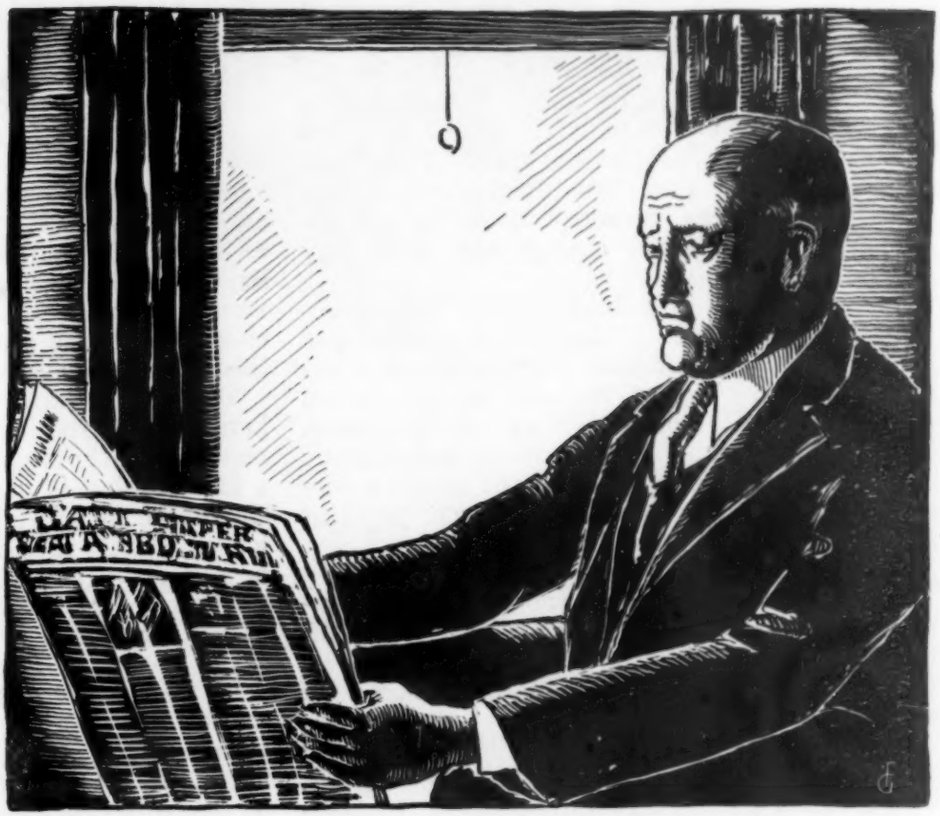
"That's him all right. We're deputy sheriffs, and that man, in case you'd like to know, is Strack!"

Julian and Will knew, for Strack was the desperado of the hour. They had had a tip, the men explained as they hurried to their cars, and hoped they were close on him. They drove down the road in the direction they believed the bandit had taken, leaving the two to wait for somebody to pick them up. But it was not easy to get a car to stop for two men, even if the two were only mildly suc- *(Continued on page 568)*

EYE DISEASES IN ADVANCED AGE

Chapter XI of THE EYE BOOK

By
HYMAN COHEN



AT 45 THE ACCOMMODATION WEAKENS AND MOST PERSONS NEED GLASSES FOR CLOSE WORK, ALTHOUGH THERE ARE SOME RARE EXCEPTIONS. IT IS NOT WISE TO STRUGGLE AGAINST A NATURAL DIFFICULTY AND ATTEMPT TO DO WITHOUT GLASSES FOR READING AND OTHER CLOSE WORK.

Part I

I STARTED this discussion of the eye with the infant at birth. As I proceeded, others with varied eye complaints and afflictions were included. The ranks grew and grew, augmented by those of every decade and period of life, some with easily correctible defects of sight, others with minor diseases and still others with grave eye troubles and unfortunate results.

Those at the threshold of about the fifth decade of their lives swell the ranks still further and stand massed, applying for advice, for relief and for cure. The eye is the clock of age.

Many old persons have an unfounded fear of the loss of sight; there is no reason for this in the majority of cases. However, advanced age does offer several eye problems of its own; the eyes of middle-aged and elderly persons are subject to special disabilities and diseases that usually occur after 45 or 50.

Benefits are sometimes cumulative, and disabilities always are. If a person has had poor eyes in youth, they will certainly not improve as he grows older. If one has had good eyes in youth, one nevertheless rarely escapes changes and the necessity for the oculist's care. With the advance in age the eye, like the other organs, begins to register a vital decline. In the case of certain of the other organs mutual aid is possible; the skin takes off the load of a poorly functioning kidney, and a collateral circulation takes care of a part whose regular supply is blocked. But because of their highly specialized function, the eyes must do their work for themselves. However, there is a redeeming feature in the fact that in many instances of visual difficulty in middle age there is a ready remedy in corrective glasses.

At 45 the accommodation weakens and most persons need glasses for close work, although there are some rare exceptions. It is not wise to struggle against a natural difficulty and attempt to do without glasses for reading and other close work. False pride and fastidious finicalness should not be allowed to stand in the way of comfort, usefulness and eye health. Such sacrifice is not justified.

SWELLINGS and puffings of the skin of the eyelids, wrinkles, puckerings, tell-tale and woe-tale dark rings worry many persons. Swellings that are not red, that come and go and are not attended by other symptoms, may be due to kidney or heart trouble. A chronic infection of the tear-sac will cause a swelling below the nose

angle of the eye. An air swelling gives a crackling sound and results from a fracture of the bones of the orbit.

Wrinkles and puckerings may be due to irritation of the eyes by glare or disease, or they may result from uncorrected sight defects. They are as much prints of the crow's feet of worry as of excessive facial hilarity; they are sometimes produced by the not ignoble habit of thought and mental concentration. The skin that had been made elastic and pliable by the robust tone of health, or had stretched over a padding of fat, is left hanging loose. An aged leaf wrinkles; no less so does man. If wrinkles come naturally and not prematurely, they should be honored as adornments, for all the geniality, good humor and graciousness they can hold.

The prevention of wrinkles lies in the correction of sight defects, the immediate cure of any lurking disease, avoidance of glare, of the sharp stylet of worry and of the acid of discontent, and cultivation of blandness and mental poise.

Dark circles may be a family characteristic or may be caused by insufficient sleep, a low ebb of vitality because of too great physical expenditure, or flagging health.

Tuberculosis of the skin and syphilitic implantation often produce ulceration of the skin of the lids with possible distortion and its injurious effects. They call for immediate medical attention.

Growths in the skin of the eyelids range from the harmless, elevated, drab yellow patches, to warts, cysts, enlarged blood vessels and malignant tumors. Early diagnosis of any growth is a protection against possible serious results.

Normally the inner margin of the lids rests snugly against the curved front of the eyeball. When there is spasm of the circular muscle running in the lids, the lid border is caused to curl in, a condition known as entropion. A shrinkage of the eyeball, its sinking backward or its absence have the same effect. Contracting scars of the conjunctiva make the lid curl in on itself. A tight bandage for any length of time may produce the same result. When that happens, the cornea is irritated by the eyelashes and may suffer inflammation and ulceration; the drainage of the tears is disturbed.

If entropion is caused by spasm, a little strip of adhesive tape placed horizontally along the lower margin of the orbit will prevent the lid from turning in. If the eye has been removed, a glass eye should be worn to give the lid support. Tight bandaging should be avoided. An operation may be necessary.

Outturning of the eyelids, or ectropion, is the opposite condition of incurling. Spasm of the lids may cause it, and in this case both the upper and the lower lids are involved. Sometimes it is due to paralysis of the circular muscle and its consequent loss of tone. Usually the lower lid only is turned out and hangs down to greater or lesser degree, exposing the conjunctiva. Inflammatory thickening of the conjunctiva by gonorrheal infection, trachoma or chronic conjunctivitis is responsible. The exposure of the conjunctiva in turn induces further inflammation and thickening which add to the weight of the lid and cause still further sagging. Frequently the turning out and down of the lid is due to a scar of the skin of the lid from mechanical injury, a burn or chronic eczema.

No matter what the cause is, the lid is thickened and swollen and looks unsightly. The eye cannot properly close and is constantly exposed to the drying effect of the air and to dust. Because the opening leading into the tear-sac is turned away from the eye, the tears fall over the cheek and cause erosion of the skin of the lid; this still further aggravates the trouble.

To prevent the condition, the eyelids must be kept sound, free from inflammation and the resulting thickening.

If ectropion is paralytic in origin, electricity should be employed. In elderly persons with loose, wrinkly skin of the lids a bandage should be put on at night. In wiping the tears away the movement should be from below upward. When these measures fail, operation is necessary.

Between their coming and their going, tears accomplish many things, some fitful and capricious. They have a proper physiologic usefulness in relieving emotional stress; as a means to an end of a certain kind there is nothing better.

When the tears are plentiful, they drain off through the tear-sac and tear-duct, which is all very well when the nose works in harmony with the eye. When it does not, it may cause a condition known as dacryocystitis, a chronic inflammation of the tear-sac, due to a constriction in the duct that continues from the sac. This constriction is brought about by congestion of the lining of the nose, inflammation, catarrh or nasal growths. Sometimes the stricture is due to narrowness of the bony passage.

The tears cannot get down into the nose; they accumulate in the tear-sac and become stagnant. The sac begins to bulge; there is a swelling under the inner angle of the eye and on the side of the nose. When the swelling is pressed with the finger, the contents of the sac escape outside through the tiny buttonhole-like opening at the inner end of the border of the lower lid.

After some time, bacteria get into the sac and the stagnant contents become purulent. A chronic inflammation of the tear-sac is now established. It may last months or years; or it may come and go. The tears fall over the cheek and may cause eczema of the lid or do injury to the lid border. Relief may be had by frequently expressing the contents of the sac.

IN ELDERLY PERSONS, ESPECIALLY THOSE CONSTANTLY EXPOSED TO THE IRRITATIONS OF WIND, SMOKE, DUST AND HEAT, A SPOT IN THE CONJUNCTIVA SOMETIMES UNDERGOES A DEGENERATIVE CHANGE, AND AN EXCESSIVE NEW GROWTH, FLYWING-ON-THE-EYE, OR PTERYGIUM, FORMS AT THAT SITE.

For the cure of the condition, the trouble in the nose must be corrected. Often this cannot be done, or the constriction of the duct has become definite. Then one must resort to dilation of the duct with probes. If the constriction yields, normal function is again established. Probing is, of course, useless if the constriction is in the bony structure. By operation a new opening can be made into the nose. Most often the tear-sac is removed in what is not a serious operation.

AFTER removal of the sac the tears on that side, if overabundant, will fall on the cheek; but that is less of an evil than carrying a sac of pus on the face and being subjected to attacks of acute inflammation of the tear-sac. This always is a consequence of the chronic form of dacryocystitis. By the invasion of bacteria and the pus they produce, the wall of the tear-sac is eaten through and the inflammation spreads to the surrounding tissues.

This is a violent, sudden inflammation; the skin under the inner angle of the eye as well as that of the eyelids becomes red and greatly swollen. Fever, pain and involvement of the conjunctiva follow. Later the top of the swelling turns yellowish with the thinning of the skin over the pus, which begins to "point." Rupture of the abscess follows with the formation of a fistula through which the contents of the swelling discharge.

As long as the fistula remains open, there is no danger of another acute attack. Sometimes the opening becomes so small that it can hardly be recognized, except by a tiny bead of discharge that appears occasionally. When the opening becomes sealed up entirely, an acute attack is liable to follow.

Expression of the contents of the sac and irrigation of the sac with antiseptic solutions are measures employed to abort abscess formation. If that fails, hot moist compresses should be used to help ripen the abscess and relieve the pain. Prompt incision may also be employed according to the condition. It is often best to have the sac removed at once.

Chronic means lasting over a long period. If the causes that bring on the acute form of conjunctivitis are not removed, they produce and establish the chronic form by repeated acute attacks. Then, in turn, the chronic condition predisposes to still further acute attacks.

The symptoms are more or less the same as in the acute form. The discharge is not always so profuse, but the smarting and itching last longer and are more troublesome. The lining membrane of the eyelids becomes permanently reddened and thickened; there is soreness of the skin at the outer angle of the eye, and the eye looks a little bleary and is heavy and tired, especially toward night.

The treatment requires the elimination of all possible irritation, a mild zinc solution, hot moist compresses, and the application of various astringent agents by the physician. It often requires prolonged treatment and dutiful cooperation with the physician's efforts.

IN ELDERLY persons, especially those constantly exposed to the irritations of wind, smoke, dust and heat, a spot in the conjunctiva sometimes undergoes a degenerative change and an excessive new growth, flywing-on-the-eye, or pterygium, forms at that site. This growth always appears on the exposed part of the eyeball between the lids, usually on the side next to the nose. The growth may form on both sides and on both eyes. It is a triangular red patch, streaked with blood vessels. The base of the triangle is toward the angle of the eye. The head, like the point of a heavy-leaded pencil, is directed toward the cornea. Often the membrane burrows its way and creeps forward until

it is on top of the cornea. It may become stationary after reaching a certain size in its growth, or its growth may continue to be progressive. When pterygium invades the cornea and encroaches on the pupil, it interferes with sight. In addition, if it is stout and extensive, it hinders the movements of the eye. It is disfiguring.

The stationary type may be let alone if the head has not burrowed into the cornea. The progressive type should be removed before the cornea is invaded, for once that happens the spot occupied by the head remains opaque, even after the growth has been removed.

Is it a mere coincidence that throughout the ages, in all mythologies and moral teachings, the good has always been identified with light, and the evil with darkness? It is no mere coincidence, it may be ventured, that concept and guidance of the good were borrowed from the powers of the eye, and the bad from the eye's failure.

CATARACT, the loss of transparency on the part of the crystalline lens, is a frequent instance of the eye's failure. It is a common affliction. Aunt Mary, Uncle Phil, Neighbor Jones, Judge Jenkins, Farmer Schmidt and people everywhere have it.

No one should be in fear of it, but timely and honest information may prove helpful. In almost every case, relief is possible.

It is an old affliction. The ancients, noticing the black of the pupil becoming grayish white, considered it a churn of falling foam in front of the lens. On the strength of that conception it was later called cataract.

The trouble is in the crystalline lens. Instead of affording a clear passage to light, it becomes opaque and then acts as a barrier and as a curtain that keeps the eye from visual contact with the world.

Whether or not a cataract will interfere with sight depends, in the first place, on its location. If the opacity occupies only part of the lens, and that outside the area of the pupil, then there is little or no impairment of sight. If there are distinct spots of opacity here and there with clear portions between, then there is still useful vision.

If, however, the center of the lens is involved or the opacity is total, then the degree of loss of sight depends on the denseness of the opacity. That varies in many gradations from a slight haziness, a distinct clouding, a milky translucence, a frosted pane effect or a ground glass obscuration to a curdlike opaqueness when fully ripe and a pebbly gray and sometimes darkness and roughness when overmature. There are several stages in the development; when the cataract becomes ripe, blindness is the result.

As a rule, the older a person is when the cataract first begins to form, the greater is the likelihood that it will remain in its beginning form and not result in total loss of sight.

If one eye has a ripe cataract and another cataract is developing in the second eye, the length of time until ripening takes place in the second eye can be judged by the time which was required for maturation in the first one. The usual popular test for ripeness is when the eye can no longer count fingers.

Sometimes the loss of sight in an eye with a developing cataract is due not only to the opacity itself but also to refractive changes in the lens. Frequent reexamination for glasses may help the sight and give assurance that blindness in the eye affected is not imminent.

During the development of a cataract it sometimes happens that farsighted persons become nearsighted. They can then read fine print without the aid of glasses. This is called second sight, but the vision for distance is impaired because of it. As the cataract progresses, the "second sight" is, of course, lost.

Let it be remembered that there are thousands of persons in the later periods of life who have a slight, beginning cataract which remains permanently stationary and scarcely interferes with sight.

WHAT are the causes of cataract? Some cataracts are congenital. Heredity plays a rôle. There are families in which the members are subject to the disease when they reach a certain age, sometimes early in life.

Most cataracts are of the senile variety, occurring after 50 years of age with involvement first of one eye and then of the other. These cataracts are produced by various disease processes in the body, or directly by prolonged exposure to ultraviolet rays or great heat.

Cataract is a frequent complication of diabetes and of the total removal of the parathyroid gland. Injuries to the crystalline lens, such as perforating wounds, blows on the eye, inflammations within the eye and too great tension inside the eye, are likely to produce cataract.

Besides the impairment of sight, cataract often gives rise to glaucoma and inflammation of the surrounding structures which may cause much damage to the eye.

There is no efficacious medical treatment for cataract. The apparent results boasted of by quacks are due to the fact that many cases remain stationary for years. If the opacity is small and in the center, the sight may be improved somewhat by dilating the pupil and keeping it dilated.

The only successful treatment is surgical intervention by extraction of the opaque lens. This offers many considerations to patient and eye surgeon. Each patient and each eye must be especially studied and considered from every angle. The suggestions here offered are of a general nature and can serve only to that extent.

Before operation is undertaken, it must be made certain that the cataractous eye, even if blind, can still appreciate the presence of light in a darkened room. The other eye is thoroughly covered during the test; but the patient should be able to point to the light in various directions. If this test fails, it is an indication that the sight-perceiving structures, the retina and the optic nerve, do not function and that it would be useless to operate, unless the operation is desirable for cosmetic reasons only.

THE decisions as to the proper time for the operation and the order in which the cataracts should be removed, when both eyes are involved, must be left to the judgment of the eye surgeon. If possible, the two eyes should be operated on at a close interval. If this is done, the heavy glasses necessary after operation can be given for the two eyes at the same time, so that the patient may find it easier to get used to them.

Complicated cataracts are more difficult to operate on, and the risk is greater. The more imperatively urgent feature in each case must decide the action.

Cataract from direct injury is not usually operated on until the attending inflammation subsides. Sometimes the opaque lens becomes absorbed of itself, and no operation is required.

For various reasons, cataract operation is done under local anesthesia. During the operation, and later, the utmost self possession and cooperation of the patient are required. The doctor's orders must be strictly followed in every detail. An unruly and fidgety patient can do much harm to his eyes.

After the eyes are well, glasses must be worn as a substitute for the lenses that have been removed.

[NOTE.—In the July issue, Dr. Cohen will continue his discussion of eye diseases in advanced age.]

HEALTHGRAMS ✣ from Articles in This Issue

¶One of the most stable of the bonds connecting the chemist and the physician may be found in dyes. The same dye that gives vivid color to a woolen, silk or cotton yarn may, in the hands of the physician, protect the life and health of human beings. *See page 546*

¶The eye is the clock of age. False pride and fastidious finicalness should not be allowed to stand in the way of comfort, usefulness and eye health. *See page 535*

¶We might overlook a few of the venomous bites of the Black Widow spider if she becomes, as well she may, a potent factor in the modern sanitation of our Sunny South. *See page 530*

¶Many dessert powders are a real boon to the housewife, as a means of using the remainder of the daily milk and of introducing variety into a bland diet and into the diet of very young children. *See page 542*

¶The ideal patient will select his family or personal physician with great care, will let him know that he is regarded as the chief medical adviser, with the privilege of calling all the skilled assistance needed, and then will trust this doctor as long as he shows himself worthy of confidence. *See page 496*

¶The study of infancy constitutes a new scientific frontier beyond which lie vast untapped possibilities for research. *See page 503*

¶For centuries past, music has given solace to man when he was weary in spirit. *See page 520*

¶To the true doctor the very thought of belonging to a profession which is ever growing, which is dynamic, not static, and which knows no authority but the hard one of scientific fact is a challenge to the best that is in him. *See page 494*

¶Even a casual perusal of the histories of children with eczema will convince one of the unquestioned rôle which inheritance plays in the child's predisposition to the disease. *See page 524*

¶A little more worry at the right time and a little less at the wrong time should contribute materially to every one's health and happiness. *See page 527*

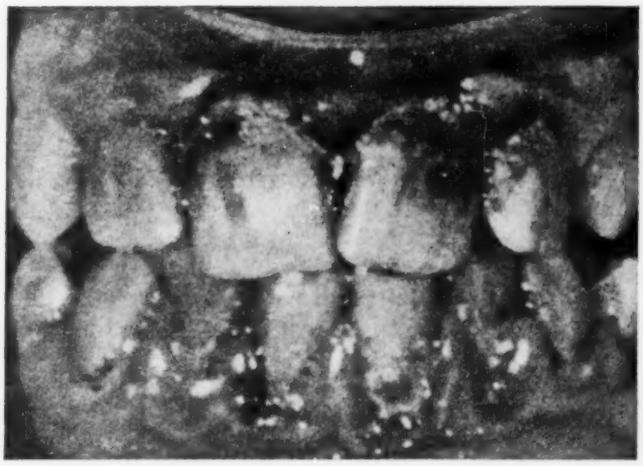
¶Vincent's infection, or trench mouth, is spread by direct contact. It may be transmitted by way of infected dishes, table silver, glasses or public drinking cups or through too close contact with another's breath; and the surest way to acquire it is by promiscuous osculation. *See page 540*

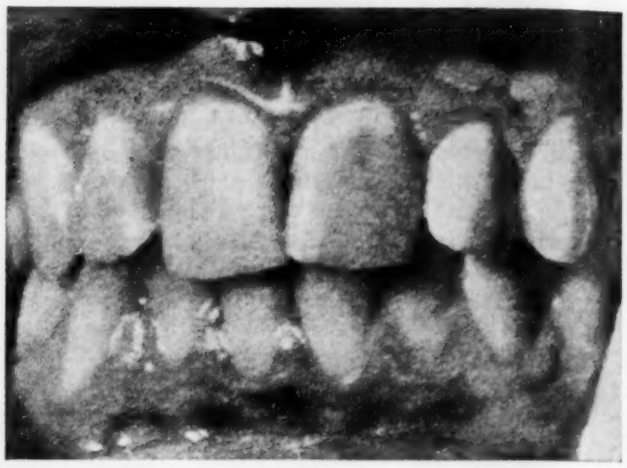
¶If you intend to fly, fly on an air passenger line or with a transport pilot rather than with unlicensed pilots. You can then be certain that every precaution for your safety has been taken. *See page 514*

Vincent's Infection, or Trench Mouth

Chapter VI of THESE TEETH OF MINE

By David W. McLean





UNBRUSHED OR CARELESSLY BRUSHED MOUTHS ARE ALWAYS SUSCEPTIBLE TO VINCENT'S INFECTION. CULTURES FROM THE FILM ON THE TEETH SHOWN IN THE FIRST ILLUSTRATION WOULD DOUBTLESS SHOW LARGE NUMBERS OF THE CAUSATIVE GERMS. AFTER A FEW WEEKS OF CAREFUL BRUSHING, THE SAME MOUTH IS COMPARATIVELY SAFE FROM THE INFECTION, AND THE GUMS ARE LESS SWOLLEN AND RED. DECAY MAY RESULT, HOWEVER, BECAUSE OF THE BACTERIA THAT WERE PREVIOUSLY HARBORED. (PHOTOS. COURTESY DR. I. HIRSCHFELD, "DENTAL ITEMS OF INTEREST.")

THE HIGH SCHOOL GIRL took it smilingly, glistening teeth against angry gums. But she had known me almost as long as she had her family, and her brown eyes were frankly somber.

"Trench mouth," she exclaimed. "You are Little Joybells! Why in the world must I have that?" A most embarrassing question! It may seem a far cry from trenches to the high school girl, but it is at high school age that trench mouth begins to appear. Younger children almost never have it, nor do people who have lost their teeth.

The average patient who is told that he has trench mouth feels a moment of indignation directed against the World War. It was enough, he thinks, for that war to have left a heritage of stifling debt, without bequeathing us trench mouth, adding insult to injury.

In a way, the World War did bequeath it to us. It brought into the trenches men who carried infections to which they had developed immunity in early life, and it threw them in with thousands from localities where the infection was almost unknown and no immunity had been developed against it. The infection ran through these susceptible ranks. Soldiers, returning home, spread it through the land.

Trench mouth was known before the war. It was then known and still is more properly referred to as Vincent's angina, or Vincent's infection, and was named for the man who isolated one of the germs causing it. But only an occasional patient presented it to view. That occasional one took it into the trenches in France, where among millions of men herded together in community life, it spread like wildfire. It has been almost pandemic ever since. Undoubtedly the infection developed a virulence, an impetus, which is still with us.

It occurs in both clean and dirty mouths and can be either acute or chronic. The infection is probably sometimes inhaled, for it often attacks the tonsils and throat without any previous establishment in the mouth. Usually, however, it starts somewhere on the gums; and if it is treated promptly, it never reaches the throat.

THERE is still discussion as to the part played in this infection by the common mouth bacteria, the ever present streptococci, growing in chains, and the staphylococci, which appear in bunches like grapes. It is thought that the rapid development of the acute form is due to these common bacteria and that later they are crowded out by undesirable citizen number one, the spirochete of Vincent, and number two, the fusiform bacillus. These two always work together. If the microscope can find them, trench mouth is present; if it cannot, the condition must be something else.

Spirochetes are corkscrew shaped germs and have other properties of a corkscrew besides their appearance. They screw their way deeply into the gum tissues, and long after the dentist

thinks he has them legislated out of existence, they bob up again.

All spirochetes are notorious die-hards. The spirochetes of Vincent are no exception. Having taken over the activities which the cocci have so flourishingly started, they hang on like grim death. When the acute disease has been overcome, the patient may later return with the chronic form, especially if he has not presented himself frequently for a check up.

THE first infection may be a mild chronic one, characterized by an angry red color of parts of the gum or perhaps of the entire inside of the mouth. Even this form is difficult to cure. It keeps reappearing, and in the end many of these cases become pyorrhea cases. Some authorities claim that these two germs are the specific causes of pyorrhea. Doubtless they are the chief bacterial factor in the development of that disease of many causes.

Acute Vincent's infection starts with a spot of acute inflammation, usually somewhere on the outer surface of the gums. The area is painful to the touch, whereas in the chronic form and in pyorrhea the areas infected are not especially sensitive. The acute area is soon covered by a whitish film, like a false membrane, though this is not always in evidence, for it may have been brushed off. Under it the gum is raw, bleeding and painful.

This is the ideal time to refer the trouble to the dentist or pyorrhea specialist. More than medication is needed; the dentist is equipped to provide the full treatment. If the condition is neglected, it spreads quickly throughout the mouth; the breath becomes offensive, and fever and nausea are present. The patient is sick. These general symptoms may call for assistance from the physician, but cure must come from correction of the mouth condition.

The first attack on the disease is by germicides or spirocheticides, for the ordinary germicides are not very effective spirochete killers.

Then follows a general cleaning of the mouth. All places where the germs can incubate must be eradicated. The cure is like destroying the breeding places of mosquitoes to wipe out an epidemic of yellow fever.

All deposits of tartar and stain must be removed from the teeth. The teeth must be kept so highly polished that if a spirochete steps on one he will slip off. He must not be able to roost there and multiply.

All fillings, crowns and bridges that have projecting edges under or near the gum must be trimmed and polished or, more often, removed and replaced. All cavities must be filled.

The back surfaces of wisdom teeth or any surfaces difficult to reach with the brush are breeding places for spirochetes and other bacteria. The patient must keep his tooth-brushes new, fresh and as clean as possible.

Proper mouth washes are useful aids to treatment, but the patient should not try to treat this condition at home with mouth washes recommended by friends or advertisements. He might as well try to stop a prairie fire with a flyswatter.

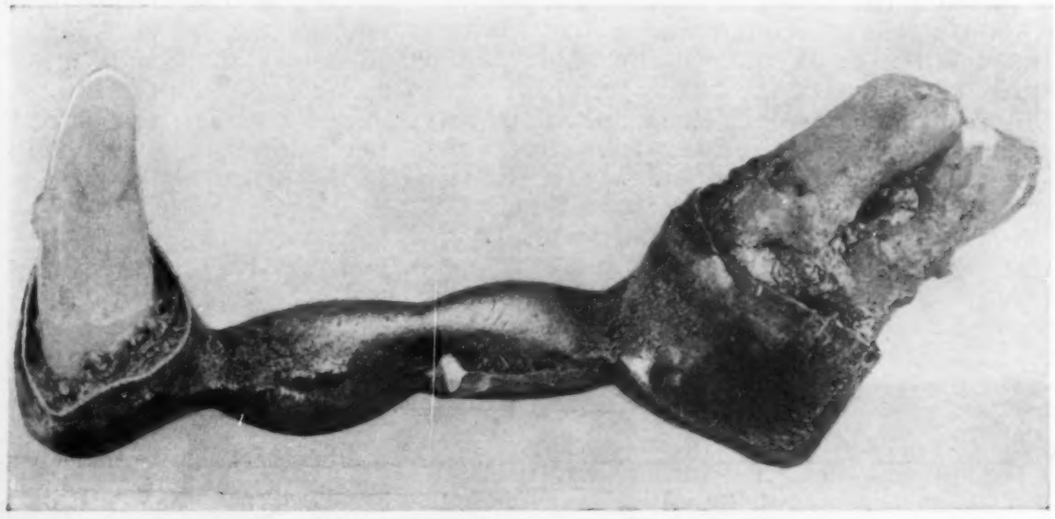
A PROGRAM which will prevent the appearance of trench mouth is outlined as follows:

First of all, keep the mouth clean. That entails not only efficient home care but also periodic thorough cleansing by the dentist. The bacillus-spirochete team does not thrive in clean mouths. It may attack them but will be more easily thrown out again.

A mouth wash of sodium perborate or some other oxygen liberating wash or dentifrice is a useful prophylactic.

The infection is spread by direct contact. It may be transmitted by way of infected dishes, table silver, glasses or public drinking cups or through too close contact with another's breath; and the surest way to acquire it is by promiscuous osculation.

[NOTE.—In the July issue, Dr. McLean's topic will be "A Short Story of the Long Tooth."]



OBSOLETE TYPES OF BRIDGES AND CROWNS AS WELL AS ROUGH AND OVERHANGING FILLINGS OFFER "HIDE-OUTS" FOR THE UNDESIRABLE CITIZENS THAT EITHER CAUSE OR ACCOMPANY TRENCH MOUTH, COMMON COLDS AND OTHER UNPLEASANTNESSES. A CLEAN MOUTH IS NECESSARY FOR ITS OWN HEALTH AND THAT OF ITS OWNER.

A HOUSEWIFE LOOKS at

XXI. Committee Acceptance of Dessert Powders

By DORIS W. McCRAY

ACCEPTANCE of dessert powders is good news for housewives and mothers since these products are simply and easily prepared and may be made into tempting, wholesome desserts. Many desserts of this type afford a good means of adding a quantity of milk to the diet. Milk is a good, nourishing, easily digested food; it has been called the most nearly perfect food. Therefore wise women follow the general rule of 1 quart a day for each child and at least 1 pint for each adult. A part of the daily allowance of milk is served as a beverage and some of it is required in cooking. Many dessert powders are a real boon to the housewife, as a means of using the remainder of the daily milk and of introducing variety into a bland diet and into the diet of very young children. A child, an invalid or any member of the family may welcome a tasty, tempting dessert when he might not want to drink milk.

The Seal of Acceptance on a popularly advertised brand of dessert powder gives to it considerable added prestige, since it would not bear this Seal if the manufacturers had not complied with the rules for acceptance. The manufacturers claim that it is "a dessert powder for the simple preparation of table desserts." No elaborate or false claims are made. The report which appeared in *The Journal of the American Medical Association* describes it as "a mixture of dextrose, corn-starch, sucrose and flavoring of four different kinds, in the different powders offered, namely: vanillin and coffee, caramel and vanillin, cocoa and vanillin, and vanillin alone, colored with U. S. Department of Agriculture certified color." It is packed in wax paper cartons. It furnishes 3.7 calories per gram, or 105 calories per ounce. The analyses of the different flavored dessert powders of this brand vary only slightly; in the vanillin flavor, this percentage is given as 45 per cent of dextrose, frequently spoken of as corn sugar; 24 per cent of sucrose, commonly called cane sugar, and 24 per cent of starch, such as corn-starch.

I have made desserts using the different flavors of this dessert powder and found them delicious indeed. I have seen sturdy children consume this dessert with evident pleasure. While the same nutritional values could be derived from certain other foods, those foods might not furnish the same taste appeal, and they would therefore be difficult to "sell" to young customers. The dessert was so well liked when made from the four flavors of dessert powder that I have served it in a number of ways which make it appear slightly different; and in every case I have found that it conforms to the advertising claims that it is "a delicious, wholesome, quickly prepared dessert, welcomed by housewives everywhere." When the pudding is made according to the directions, it has a consistency which makes it suitable to serve in deep dishes as dessert while it is still warm. It is smooth and creamy when cooled, and it is firm enough to hold its shape when molded, chilled and turned out onto plates. As a pie filling, it is excellent; it holds its shape and can be cut into neat wedges when chilled. Many of the desserts suggested in the advertising folders are delicious; they include a chocolate bread pudding; a chocolate roll consisting of the cooled dessert spread on warm sponge cake and rolled as a jelly roll; a vanillin mold with thin chocolate sauce made from the chocolate dessert powder and a larger quantity of milk than usual; caramel parfait; charlotte russe; ice box cake; floating island; macaroon pudding; Nesselrode pudding; Washington pie with the cooked dessert spread between layers of cake; tarts, and meringue pie. Various fruits and garnishes, such as chopped orange peel, toasted coconut, chopped candied orange peel, raspberries or prunes are useful to give variety.

The dessert powder is useful for making chocolate fudge or candy of the other flavors when mixed with sugar and cooked. A tablespoonful of the chocolate flavored powder may be added to milk to serve as a beverage.

Essentially a carbohydrate food, this dessert powder itself is valuable mainly for its calories, but the dessert prepared with milk has the advantage of the milk properties also; 1 package cooked with 1 pint of milk makes 4 liberal servings; the dessert powder furnishes 105 calories, and the milk furnishes about 85 calories to each serving.

The caloric needs of each person depend on his size, including height in inches, square inches of body surface and weight, and also on age, sex and activity. Since the term "energy" is sometimes improperly and deceptively used in food advertising, the Committee has issued the following decision:

ENERGY CLAIMS FOR FOODS

All foods except the simple mineral foods and water contain chemical energy available for use by the healthy body to support the many activities and life

the COMMITTEE ON FOODS

processes and incidentally to maintain temperature. This use of the term "energy" in defining the caloric energy value of foods should not be confused with the popular usage signifying the state of extreme well being, good health, vitality, strength, vigor or endurance. These conditions depend on many factors, including freedom from disease, native constitution, physical environment, good general nutrition, wholesome life habits and others. Even good nutrition, a necessity for health, requires far more than available food-energy only; all the nutritional essentials of a complete, well balanced diet, in adequate amounts, are demanded.

Food advertising should correctly inform the public of the energy values of foods in carefully chosen terms that may be properly interpreted. The distinction between the caloric and popular senses of the word "energy" must be recognized and observed.

Examples of appropriately phrased food-energy claims are: "Good source of food-energy," "High in food-energy content," "Furnishes (x) calories of food-energy per ounce of food," "Provides food-energy for supporting energy demands of the body for work and play," "Furnishes food-energy for replenishing the energy losses of any physical work." Misinformative uses not correctly interpretable by the public and fostering deceptive advertising are exemplified by the statements: "Energy food," "Gives energy," "Furnishes energy for pep and vitality," "For quick energy," "For reviving or renewing energy." Illustrations representing vigorous muscular activity accompanying misinformative energy claims accentuate the unwarranted implications.

The terms "food value" or "nutritional value" should not be used synonymously with "food-energy value." The food or nutritional value of a food includes the vitamin, mineral, protein, fat, and other values.

Manufacturers of accepted dessert powders have carefully worded their advertising matter in compliance with this Committee decision in order to call attention to the caloric value of the dessert powder itself.

After eating, the dextrose of the dessert powder is available for prompt absorption into the body. Dextrose is only about two-thirds as sweet as cane sugar. Sucrose is readily digested by the normal child. Though starch does not require cooking for digestion, cooked starch digests more rapidly than raw starch. However, starch is less likely than the sugars to upset the digestion when fed in large amounts.

Among the classes of food substances, carbohydrates are the least expensive and proteins are the most expensive. Proteins are broken down in the body to yield some carbohydrate. Proteins yield food energy as do carbohydrates, if the latter are lacking.

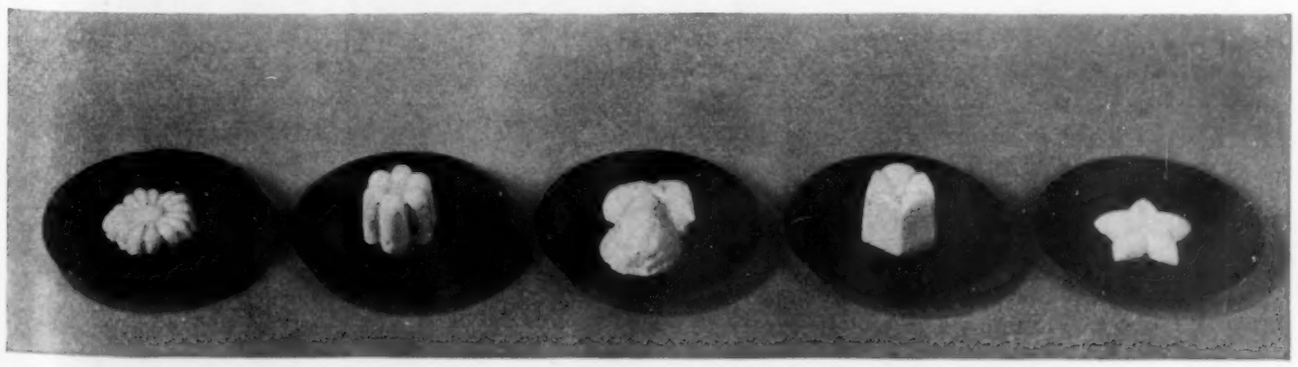
Since some dessert powders are used with milk, certain advertisers have taken advantage of this fact to represent that their product possesses all the good qualities for which milk is accepted and respected by the public. In order that the public may not be deceived by such trick advertising methods, the Committee on Foods of the American Medical Association has published the following decision regarding the food advertising that is eligible for the Seal of Acceptance:

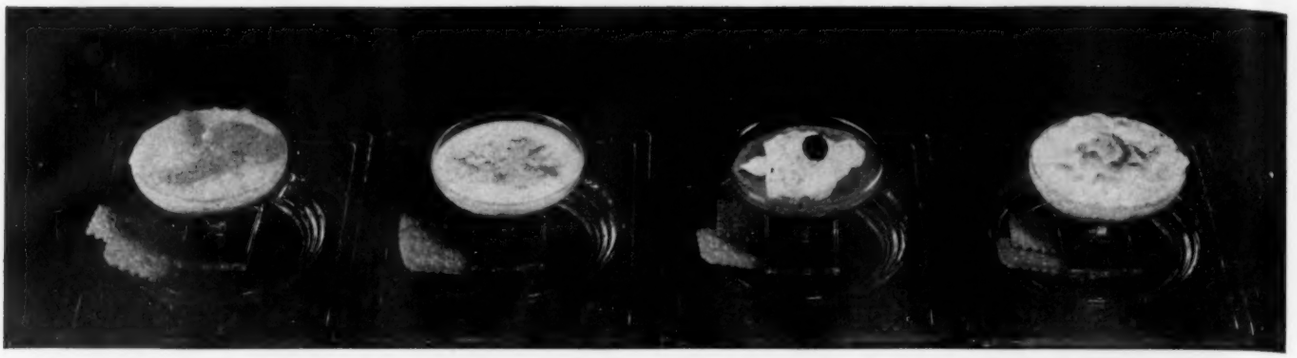
TRICK CLAIMS IN FOOD ADVERTISING

Claims in food advertising implying for the food advertised the merits of something more valuable (such as milk) with which it may be admixed for use are of the nature of trick advertising. These claims are so constructed grammatically as to connect the stated values with the advertised food, whereas such values in large part are provided by the other products of the mixture. This trick grammatical structure is illustrated by the statement: "XYZ made with hot milk is not only delicious but nourishing. It is rich in the proteins, fats, carbohydrates and minerals children should have." The antecedent of "it" is XYZ; the grammatical structure incorrectly makes XYZ the source of the fats, carbohydrates, minerals and proteins children should have. Claims of this character to all appearances are planned to trick the reader. Such a statement as "the mixture of XYZ and milk is rich in proteins, fats, carbohydrates and minerals (calcium and phosphorus)" is correctly informative and satisfactory but should be used in such a manner as to be free from false connotations.

Food advertising should be truthful in statement and by implication. Trick advertising and all other misleading forms are harmful to food advertising and merchandising generally.

TRUTHFUL advertising characterizes a different brand of dessert powder which has been accepted by the Committee on Foods of the American Medical Association. The manufacturer claims that 1 package of this powder and





1 pint of milk will make a delicious dessert. The dessert is tender and somewhat like custard, although in reality it is the kind of dessert referred to in the nursery rhyme, "Little Miss Muffet sat on a tuffet, eating her curds and whey." This delicacy was prepared by rural housewives in England and known as Devonshire junket; the recipe was brought to this country, but the preparation was somewhat inaccurate until rennin, as used in cheese making, was prepared in a factory built in 1878, when old haphazard methods were superseded by scientific, sanitary, carefully controlled methods of production. This food product was one of the first accepted by the Committee on Foods of the American Medical Associaiton.

According to a report which appeared in *The Journal of the American Medical Association,* the strength of the product is standardized, so that uniform results may be obtained when the dessert is prepared in the home. The powder furnishes approximately 4 calories per gram, or 114 calories to the ounce; this food value is derived almost entirely from the cane sugar contained in the powder in the proportion of about 98 per cent. Six flavors are packaged; namely, vanilla, chocolate, orange, raspberry, lemon and coffee. The colors and flavors are in compliance with U. S. Department of Agriculture regulations under the federal Food and Drugs Act and therefore are acceptable to the Committee on Foods. Suitable colors are used in amounts that will make the resulting milk dessert attractively pastel colored and appetizing. True fruit flavors are used, including lemon oil, orange oil, pure vanilla, high grade coffee and cocoa.

The delicious junket dessert, made from dessert powder in which rennin is the important ingredient, may be taken without discomfort by the person who is overtired or whose digestive capabilities are below par; for rennin as a dessert powder enables the formation of a soft, friable milk curd in the stomach. This dessert is allowed in any diet which includes milk, such as the hospital liquid, soft, light and full diets. It is a welcome diversion from plain milk. Because it is so easily digested, it is allowed in some diets in which milk is not included.

Some hospital diets do not allow the use of cane sugar, and the plain, unflavored rennin tablets that are used with milk for preparing unflavored, unsweetened junket have been used for years in the preparation of dainty dishes, flavored and colored as desired. Saccharin is used for sweetening, when directed by the physician. For the infant the dessert may be made without sweetening. The sweetened dessert is one of the first foods which he may enjoy eating with a spoon.

Unflavored rennin tablets are useful in the household preparation of tender, tasty cottage cheese from sweet milk. They are also useful in preparing a jellied tomato soup or other jellied soup in which milk and a sieved vegetable are used; such a soup, thoroughly chilled, is particularly appetizing in hot weather.

The advertising booklets, which have been accepted by the Committee on Foods, illustrate attractive ways to serve the dessert and give recipes and furnish menus for children's parties and meals. One idea, new to me, would certainly be welcomed for hot weather breakfasts, when every one comes to the table feeling languid and opposed to ordinary food. Mold farina or other cooked cereal, and turn the mold out into a deep dish; then pour the prepared dessert, probably vanilla or orange flavored, around this mold; let it become firm, and garnish next morning with fresh berries. The appearance is that of milk in the dish around the cereal, but the liquid has become delicately jellied. Corn flakes or other prepared cereal or a serving of baked rice pudding may be heaped in the center of the dish and prepared the same way.

The dessert is more delicious than usual, if it is made with half cream and half milk; this idea is useful to the mother who hunts for methods of adding calories to her child's diet. A small amount of left-over cooked custard may be added to the milk used in making the dessert.

Some of this dessert I prepared had been moved before it became firm, and it presented a watery appearance; hence I emptied it into a small bowl and beat it thoroughly with a rotary egg beater to make a delicious thin custard sauce. This I used instead of cream on cold fruit or pudding, although it would not have been suitable to use in hot coffee. The sauce is so quickly prepared that it is useful on those

occasions when there is not enough cream to serve guests. This dessert powder may be added to milk, to flavor and sweeten it, in the proportion of 2 teaspoonfuls to 1 glassful of milk; it is well to mix the powder and milk with an egg beater and to drink the mixture within a half hour. In the same manner, a favorite flavor may be added to hot milk; it should be stirred, not beaten, until the powder is dissolved. The unflavored tablets may be used in the proportion of ½ tablet crushed and added to 1 glassful of milk. In addition to the usual value of milk served cold or hot, this beverage is digested more easily for rennin powder transforms milk into soft, custard-like curds.

Rennin for household or commercial use is prepared under strict sanitary conditions, such as prevail in the manufacture of gelatin desserts and in the meat packing industry. Rennin is an enzyme in the gastric juice of the stomach of the suckling calf which enables the calf to digest cow's milk. All the calves used are government inspected, fresh and properly refrigerated, and they are handled in a manner suitable to the production of a food product which would merit the acceptance of the Committee on Foods of the American Medical Association. The milk coagulating power of each package of the dessert powder is standardized, so that one package of the dessert powder is exactly the same as every other package marketed. The company maintains a home economics laboratory, where trained women work out new ideas for use of the product in hospitals and homes.

The same rennin powder forms the basis of an ice cream mix which is easy to use. Directions on the package require that the contents be added to 1 pint of light cream or a mixture of equal parts of heavy cream and milk and that the mixture be beaten from one to two minutes with an ordinary hand operated rotary egg beater until it thickens. I timed the operation in my own kitchen and found that only one minute was required, although the extra minute might be required under different conditions. I immediately poured the mixture into the freezing tray of my electric refrigerator and allowed it to freeze until it was firm enough to serve. I was amazed at the splendid texture and lightness as well as the excellent flavor; there were no jagged crystals; the amount of time consumed in preparing the ice cream was far less than usual, and the cost was lower. Anything desired in the way of chopped nuts or dried fruits could be added.

A CHILD will eat a huge dish of ice cream with pleasure and satisfaction, and it is a thoroughly appetizing way of serving a part of the daily milk allowance. The ice cream may be made rich in cream or with less cream, hence low in fat content, as desired, to fit the required diet. Sugar adds to the caloric value of the milk alone.

A sweet dessert finishes the meal satisfactorily and makes one feel satisfied; dessert is particularly useful for this purpose in the diet of one who is reducing weight. A sweet dessert in which milk is used is valuable to all normal persons because of the calcium content of the milk.

Extended quantitative studies of calcium in the diet of children between the ages of 3 and 13 years showed that the older, larger children retained a larger amount of calcium; that the optimum storage of calcium required a liberal allowance of milk in the daily diet, and that the best results were obtained when each child received 1 quart of milk each day, in addition to a mixed diet. When the amount of carrots and spinach in the diet was increased, the calcium retention was not as great as when the amount of milk was increased. While there was no doubt as to the desirability of a liberal use of vegetables in the feeding of children, vegetables should not be substituted for the milk but should be used in addition to it.

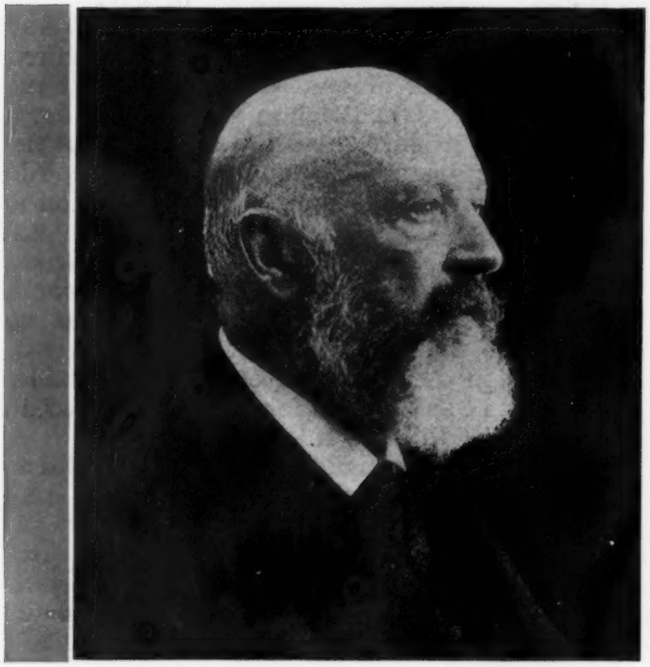
If an attempt is made to require the child to drink the entire quart, that amount may spoil his appetite for other foods. If he enjoys drinking milk, he may have a glassful at each meal and one between meals; but such a plan is likely to become extremely tiresome, and the child is bored at the sight of milk, particularly if he is urged to drink it. There are so many ways to use milk that it may be dispensed with altogether as a beverage until the child again recovers his appetite and desire for it. The wise mother may use milk not only in desserts but also in cooked cereals, creamed vegetables, cream soups, whipped mashed potatoes, creamed or scrambled eggs, soufflé or creamed salmon.

Some children store calcium at the optimum rate, when they receive only 3 cupfuls of milk a day in the well balanced diet, but other children require the 4 cupfuls, or a quart. It has been pointed out editorially in *The Journal of the American Medical Association* that "the dietary rule of a quart of milk each day for every child is much more than a precept based on individual opinions or drawn by analogy from the results of feeding experiments with lower animals; it now rests on scientific evidence obtained by extensive and intensive experiments directly upon the children themselves."

The wise mother includes generous amounts of milk in meals for the whole family. She finds delicious ways of using that milk in dishes which are attractive to the eye. She is guided by the Seal of Acceptance of the Committee on Foods of the American Medical Association in choosing wholesome, nutritious dessert powders.

[NOTE.—In the July issue, Mrs. McCray will discuss salad dressings. Lists of the accepted foods discussed each month will be sent on receipt of 6 cents in stamps.]

CHEMISTS — DYES — DOCTORS



ADOLPH BAEYER, PRODUCER OF THE FIRST SYNTHETIC INDIGO.

WHEN Mr. Mole picked the front lawn for his home and crisscrossed his burrows under the grass, the farmer's wife promptly demanded his execution. The farmer, with more ingenuity than prudence, decided to pump a solution of the poisonous mole powder into the runways instead of blowing the powder itself into the mole's subways. Disaster followed. Sufficient cyanide gas was evolved in making up the solution to poison the farmer. The hastily summoned physician learned enough of the accident to permit him to come prepared. Into a vein a highly colored dye was injected. Soon the farmer recovered consciousness and within the hour went about his affairs.

This imaginary emergency, together with the spectacular recovery of the victim, might readily become a reality if the results of a new application of methylene blue in medicine are substantiated by extensive experience.

One of the most stable of the bonds connecting the chemist and the physician may be found in dyes. The same dye that gives vivid color to a woolen, silk or cotton yarn may, in the hands of the physician, protect the life and health of human beings. Rarely does a day pass in which the physician does not make use of some dye in his medical practice. If he wishes to test the degree of efficiency of the kidneys of a patient, he resorts to a dye, phenol red. No complete blood count may be made without the application of such dyes as eosin. One of the commonest of skin disinfectants is a red dye. A purple dye, gentian violet, is employed widely in surgical treatment. Still other dyes, such as scarlet red, are applied to indolent ulcers to hasten skin formation. In other portions of the world, trypan blue and other dyes are injected into the veins of patients to combat sleeping sickness. Recently methylene blue was used and advocated in the treatment of carbon monoxide poisoning.

The chemical background from which emerge these medical dyes constitutes one of the most fascinating chapters in the lore of discovery. The story begins with an 18 year old chemistry student working at home in an improvised laboratory in England during his Easter vacation in 1856. This student was William Henry Perkin. A futile task had been set for him by his remarkable teacher, Hofmann, who was temporarily away from Germany as the head of a short lived school of chemistry in England and who had assigned to the youthful Perkin the making of synthetic quinine from coal tar.

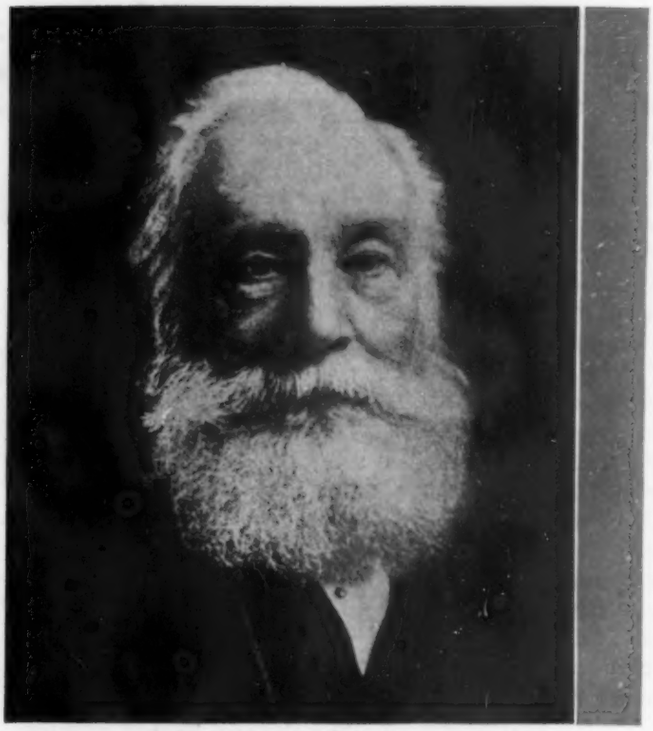
At that particular time coal tar was a worthless product. This evil smelling waste was a nuisance, and the common practice was to haul it away to the sea or some river, much as gasoline was discarded later in the days when kerosene was king of the petroleum derivatives. Nowadays the vapors from the coking of coal are carefully conserved as containing the most valuable products in coal.

PERKIN produced no quinine. Instead, he accidently produced the first coal tar dye, mauve, or aniline purple, and thereby introduced a wholly new field of chemistry. When fate placed in Perkin's beakers a black precipitate instead of the desired quinine, this chemist, defeated in his assigned objective, intelligently undertook to realize values in what was before him. Soon he found that this newly discovered chemical acted as a dye on yarns and that sunlight little influenced the dyed goods. He sought the opinions of practical dyemen who in June, 1856, made this comment on Perkin's mauve:

> If your discovery does not make the goods too expensive it is decidedly one of the most valuable that has come out for a long time. This color is one which has been very much wanted in all classes of goods and could not be obtained fast on silks, and only at great expense on cotton yarns. I enclose you a pattern of the best lilac we have on cotton. It is dyed only by one house in the United Kingdom, but even this is

not quite fast, and does not stand the tests as yours does, and fades by exposure to air. On silk the color has always been fugitive. It is done with cudbear or orchid and then blued to shade.

To the despair of his teacher, Perkin announced his intention of engaging in the chemical manufacture of dyes. Hofmann returned to Germany and, in time, to the professorship of chemistry in the University of Berlin. The Perkin dye factory was started in 1857. Just as the undertaking of the making of quinine was contemplable only because of the ignorance of the complexity of the situation, so this commercial dye enterprise disclosed at the outset none of the trying difficulties that later threatened its ruin. Raw materials were not obtainable; suitable machinery could not be purchased, and of almost calamitous consequence was the fact that the new dye failed to color fabrics evenly until it was found by Perkin that all that was required was the application of the dye in a soapy solution. Perkin bested all his trials and lived to be recognized as England's greatest organic chemist. In 1906, Perkin participated, both in England and in the United States, in celebrations of the fiftieth anniversary of his discovery of the first coal tar dye.



WILLIAM HENRY PERKIN, DISCOVERER OF COAL TAR DYE

THUS the coal tar dye industry was born in England. This birth is a little ectopic. Perkin's discovery clearly represents the influence of Hofmann, and to Germany the new-born industry shortly migrated. Throughout the entire chemical world, Perkin's adventure created a furor over the possibilities of deriving other dyes and other chemicals from the lowly coal tar. Synthetic indigo was the great prize to be won. Always, the blue indigo of the overall has been in greater demand than the mauve of the mantle of royalty. Long years were to pass, however, before the completion of the synthesis of indigo. Many other dyes were synthesized in the interim. A basic discovery antedated Perkin's work. In 1854, Bechamp made known that finely divided iron shavings and acetic acid were able to transform nitrobenzene into aniline oil. Without this development, or equivalent, the synthetic dye industry would have lacked commercial possibilities. Magenta was produced in 1858. In quick succession came aniline blue, aniline green and aniline violet. In 1861, methyl violet came into being; and two years later, Lightfoot presented aniline black to the world. Scores of other dyes appeared. Races to patent offices characterized this thriving branch of chemistry. In the production of alizarin, Perkin's application came to the British office only one day after similar patent papers from his rivals.

At about this time there came on the scene Adolph Baeyer. Working assiduously from 1865 to 1880, he finally achieved the transformation of coal into a dye product in all respects like indigo. Starting with toluene, which is a benzene-like oil from coal tar, he created successive steps, culminating in the production of synthetic indigo. Important as Baeyer's work was, it failed as a practical means for the making of indigo at a cost to compete with the natural product. The reason was simple: the coal tar industries of the world were unable to supply a sufficient quantity of toluene to meet the demand for indigo made therefrom.

However, to Baeyer goes the credit for firmly establishing the structure of the indigo molecule and the completion of the cycle of synthetic processes necessary for its production from coal. Baeyer devised many other syntheses of indigo, none of which jeopardized the industrial supremacy of natural indigo, however.

To Heumann, another German chemist, goes the credit for the discovery of a commercially profitable method. If the world's supply of toluene was insufficient, a starting point must be made with some more plentiful coal tar derivative. The answer was found in naphthalene, the material of moth balls. In spite of Baeyer's work the problems entailed were still enormous. Heumann, after prodigious effort, knew that the products within his retorts were closely akin to indigo. The last step seemed to be the most difficult of all. Thousands of experiments were being conducted in seeking the magic that would change "near indigo" into indigo.

By CAREY P. McCORD

One day, one of the chemists in charge went to lunch, leaving the precious materials in charge of a student, with instructions to stir and take temperatures from time to time. When the chemist returned, before his eyes was the completed indigo. The magic had worked in his absence. The chemist was frantic; the great problem was solved, but how, he did not know. He called his assistant, who stolidly declared that he had done nothing more than stir and take temperatures. The chemist read weather charts, looked for open bottles of chemicals in the room and wondered about impurities in the glass of his containers; the completely made indigo was more tantalizing than the unfinished product. Finally, the student, believing that he had ruined the master's great work, confessed that while taking the temperature he had broken the thermometer. Expecting condemnation, he was affectionately embraced by the chemist. Mercury was the magic; mercury was the catalyst that had transformed moth balls into indigo! This one thermometer shook the economic foundation of more than one country happily employed in the growing of the indigo plant. An accidental discovery became the turning point in the whole process.

PRIOR to the dethronement of natural indigo as the world's most profitable dyestuff, the plant producing it, anil, was extensively cultivated in many portions of the world, notably in India. This anil plant is known in several varieties. For some varieties the seeds are sown in spring, for others in autumn. The indigo plant grows to a height of from 2 to 3 feet. During the "bud" stage, or at least prior to flowering, the plants are cut and tied into bundles not unlike bundles of oats. These bundles are later dumped into large fermentation vats where the herbs are covered with water. In the process of fermentation the dye, or the precursor of the dye, is leached from the plant. The color of the vat water is yellow at this stage.

The yellow fluid is drained into other tanks. In some of these tanks may stand large numbers of natives, who beat and stir up the yellow liquid; in other tanks mechanical devices may be utilized for the agitation of the water. The end desired is the taking up by the liquid of oxygen from the air, a process which leads to the formation of a blue or greenish-blue deposit in the water. This deposit is indigo.

To prevent further action, boiling of the solution is resorted to; this probably serves the purpose of killing off the organisms responsible for the fermentation. The solid matter is then strained out of the liquid; large canvas filters are used for the purpose. After filtration, the blue-black mass is pressed for further drying and cut into bricks ready for market.

In the year 1900, about four years after the introduction of synthetic indigo, the acreage in India devoted to anil crops was about 977,349. Ten years later, the amount of land used for this purpose had diminished to approximately 282,757 acres. The reason for this enormous diminution is to be found in the black precipitate found by Perkin in his beakers, when in 1856 he sought to make quinine out of coal tar.

No indigo has been grown in western Europe for commercial application for many years. Woad, a plant producing a blue dye similar to indigo, if not indigo, was widely cultivated in England until the days of that country's dominance of India. Tenaciously this crop has held on until, only in 1932, the last woad farm in England was abandoned in acknowledgment of the superiority of synthetic products.

In 1917, England, the birthplace of synthetic dyes, was grappling at war with Germany, the country where England's cast-off industry had become a substantial pillar of its then economic security. In that year of slaughter and conflict there occurred the death of Baeyer, the man responsible more than any other person for Germany's supremacy in the world of dyes and chemicals.

Out of Perkin's beakers have come thousands of dyes. These dyes are not present in coal ready formed, but they find their origin in the coal tar hydrocarbons, such as benzene, toluene and xylene, which are obtained from the coal tar distillation. These hydrocarbons are converted into dyes by undergoing successive chemical changes through which many artificial compounds are produced. Today, approximately 3,000 different synthetic dyes are known. They provide the entire range of colors of the rainbow and make possible the compliance with every possible whim of fashion for color. These artificial colors surpass in beauty, brilliance and stability those colors provided by nature.

ACHIEVEMENT after achievement by the chemists during the quarter century before the World War captivated the imagination of all civilized mankind. Laudatory articles appeared in many magazines. From one, entitled "Chemists as Leaders," appearing in 1896, the following excerpts are derived:

> It is fair to hold that the country that has the best chemists will in the long run be the most prosperous and the most powerful. It will have at the lowest cost the best food, the best manufactured materials, the fewest wastes and unutilized forms of matters. . . . Its inhabitants will make the best use of their countries' resources; they will be the *most healthy*, and the *most free from disease.*

Grounds for dissension from the thesis that chemical excellence marks the highest national attainment may be presented by those who think contrariwise; but in the world of patients who have been helpfully served by therapeutic or diagnostic dyes, a willingness is found to extend a full measure of praise to the chemists who have made this possible.

THE DOCTOR'S SCOTLAND YARD

(Continued from page 519)

Now, you take the concealed short. The mechanic puts one of those queer looking things against the wires, and when he gets to the shorted wire there isn't any flash. He detects the short, you see, by making a special sort of examination. Well, when we are looking for these concealed evidences of disease we have to use special sorts of examinations too. For example, suppose we didn't know whether or not our unconscious man was in diabetic coma. We'd examine his blood to see how much blood sugar there was and, as the blood sugar is far above normal in diabetes, we would get that information in that way; and that is the only way we could get it too," he added, "for no matter how carefully we made a physical examination or how skilled we were in doing it, we would never be able to know as a result of the physical examination what the blood sugar was."

"Ah," said Carey, "that's where this taking drops of blood from your finger, and examining the urine, and all that sort of thing comes in, is it?"

"Exactly," replied Trebor. "That's it, exactly. And that sort of thing, as you say, is what is done in the clinical laboratory."

"So you're a sort of a chemist, then?"

"No," answered Trebor, "I'm not a chemist. I have to know some chemistry, just as I have to know hematology, which is about changes in the blood, and serology, which deals with things that are found in the blood serum or liquid part of the blood, as well as a lot of other things that go with clinical pathology. But first, last and all the time I'm a doctor who has chosen clinical pathology as his specialty."

"You know," Carey said in a slightly puzzled tone, "I don't think I quite get this yet. You do things in a laboratory; you know about diseases; you're a doctor, but where does this practice of medicine come in? You don't see patients, do you?"

"Oh, yes, quite frequently," replied Trebor. "It's quite true that often I see only the things that the laboratory receives from the patient and that the doctor sends for examination. But often I see patients too. You see, it is something like this. Your men have taken some fingerprints, we'll say. You'll admit, however, that they are not apt to be much use until some one who knows all about fingerprints has read them and classified them and finally tells you to whom they belong. That's right, isn't it?"

"Sure, that's right," answered Carey.

"Well," said Trebor, "the laboratory will find the fingerprints of disease, to keep the same illustration, but unless they are properly interpreted and unless some *(Continued on page 572)*

"Then this isn't the Boston Symphony Orchestra!"

"IT WAS SUCH A VERY NICE DAY"

By
Jo Elizabeth Michel

THERE WAS once a little boy who liked to read. Of course there is nothing remarkable about that, as most little boys like to read when they learn how; but this little boy liked it uncommonly well. He wanted to read all the time.

The people in Story-Book Land were so real to him that he seemed to know them better than the children with whom he played. He always knew what they would do, and they never became angry and cried or quarreled. True, there was a permanent depression in Mother Hubbard's cupboard. She just never had a bone for her poor dog. And it was sad to have the wolf always trying to eat Little Red Riding Hood—but then, one knew of course that she really was not in any danger and that the wood-choppers were coming soon to save her.

So this day, when Mother said, "Wilbur, this is such a nice day! You must stay outdoors and play, and not sit in the house and read," he pretended not to hear; and he slipped past her into his favorite corner, into his favorite chair and took down his favorite book.

Imagine his surprise when he opened the book, which was "Little Black Sambo," to find that Sambo himself was gone. There was the story, surely enough, but the page that had the big picture of Sambo on it was blank! Then he hurriedly looked through the pages, and always where there had been a picture of Sambo, there was just a blank space. Then on the very last page he found a little sign which read, "Won't be back no mo' today. Too nice a day. Sambo."

Then Wilbur took down his story of "Little Red Riding Hood"; but Red Riding Hood, the wolf and the grandmother were all gone, and on the very last page again he found a little sign which read, "Have gone to a picnic. Won't be back today."

Hurriedly he looked through all his story-books, and what was true of Sambo and Red Riding Hood was equally true of all the others. Peter Rabbit, Goldilocks, Jack the Giant-Killer and even the little pig who built his house of bricks and who said that work and play didn't mix were all gone. And always the little sign said, "Will be back tomorrow. This is such a very nice day."

So Wilbur sat still and thought very hard. Where had they gone? After all, the people in Story-Book Land didn't go outdoors to play just like ordinary children.

Now on the piano there was an Easter egg which was a very mysterious egg. It had belonged to his mother when she was a little girl, and Wilbur was not allowed to play with it because he might break it. It was quite large and looked like candy, but it wasn't. In one end of the egg was a hole through which you looked and saw the most delightful sight—beautiful blue skies and green grass and lovely flowers.

Wilbur was sure that was where the Story-Book people were. Very cautiously he put a paper on the piano bench, so he could stand on

it; and then he peered eagerly into the Easter egg.

There they all were, Rose Red and Snow White, Simple Simon, Peter Rabbit, Red Riding Hood, Cinderella, Alice in Wonderland, all of them, coming down from the Queen of Heart's castle with baskets on their arms, going to a joyous picnic in Story-Book Land.

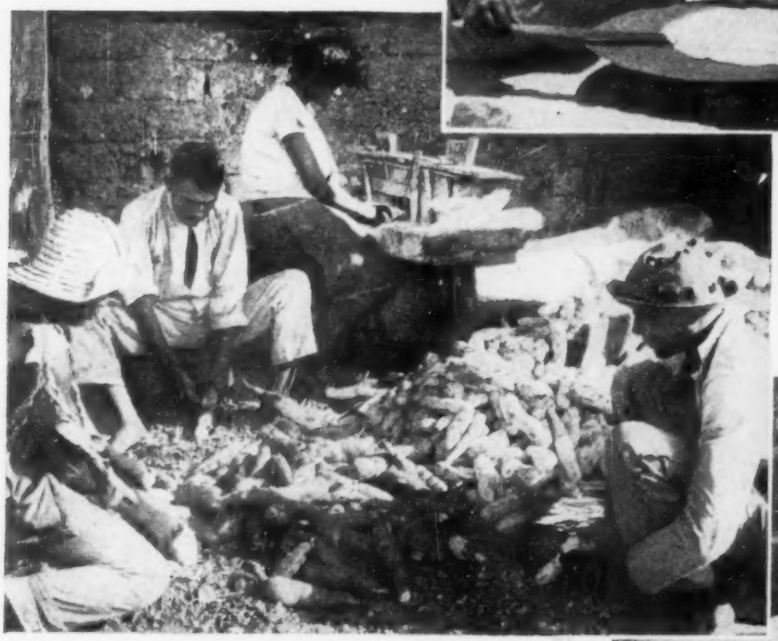
When he awoke he sat rubbing his eyes for a moment. And then he decided that he too would go out to play, because it was such a very nice day.

THE ASPARAGUS HARVEST IS IN FULL SWING AT BAELITZ, NEAR BERLIN, GERMANY. WOMEN ARE SHOWN WORKING IN THE FIELDS.

Century

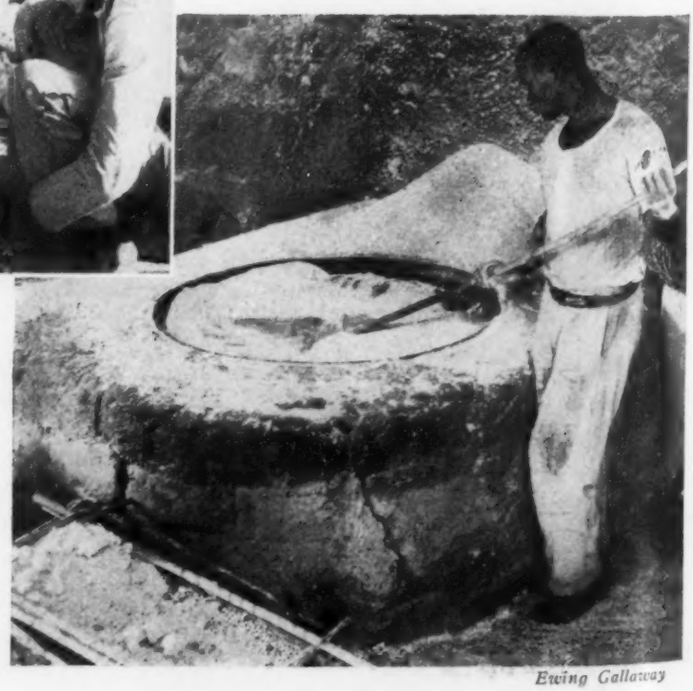
SYRIAN WOMEN MAKE THEIR "MARKOUK," OR BREAD, IN THIN WAFERS ABOUT ONE FOOT WIDE. THESE ARE A STAPLE OF SYRIAN DIET.

Adelbert Bartlett



A TYPICAL FURNACE IN A BRAZILIAN FARMHOUSE WHERE THE MANDIOCA ROOTS ARE BEING HEATED TO VOLATILIZE THE ACID CONTENT.

Ewing Gallaway

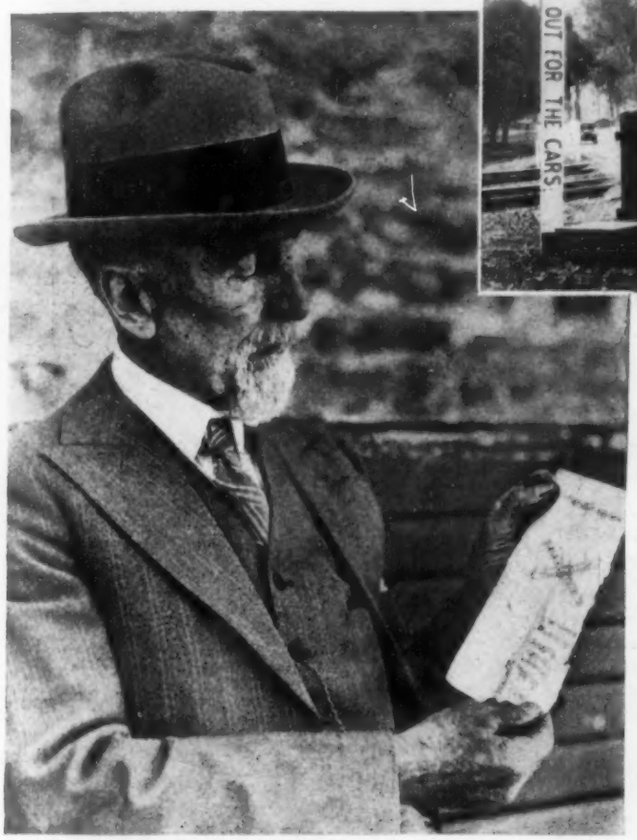


BRAZIL'S TAPIOCA INDUSTRY DEPENDS ON THE MANDIOCA PLANT. THE PRIMITIVE METHODS OF SCRAPING THE PLANTS ARE SHOWN ABOVE. BRAZILIANS EAT THE ROOTS AS A BREAD SUBSTITUTE.

Ewing Gallaway

STOP, LOOK AND LISTEN! THREE KINDS OF SAFETY SIGNALS GUARD THIS RAILROAD CROSSING LOCATED NEAR PALO ALTO, CALIF.: THE GATEMAN WITH HIS FLAG AND STOP SIGN, THE FAMILIAR CROSS-ARM SIGNAL AND THE MODERN ELECTRIC PENDULUM AND WARNING BELL.

Acme

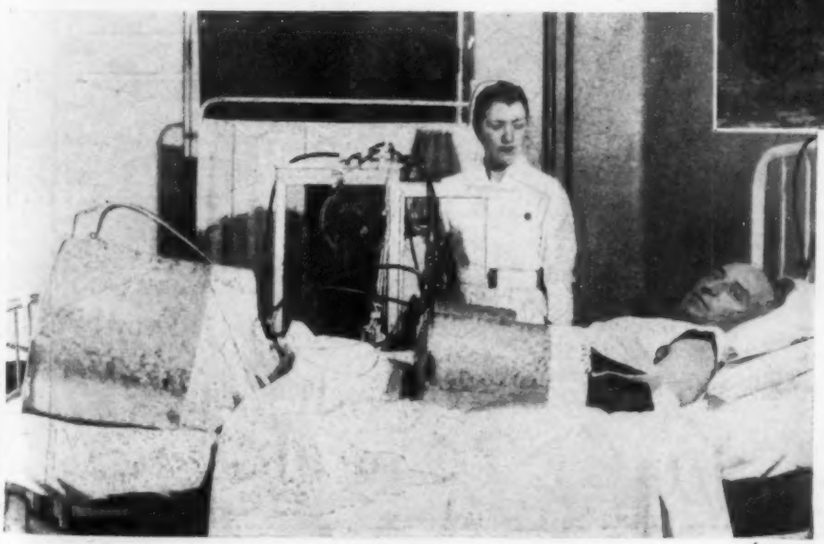


Acme

THOMAS H. GRAY, 89, WHO DIED RECENTLY IN SAN FRANCISCO, WAS THE ORIGINATOR OF "STOP, LOOK, LISTEN" SIGNS FOR RAILROAD CROSSINGS, FIFTY-ONE YEARS AGO. HE REFUSED TO GET A PATENT.

THE "HOUSE THAT TRAVELS WITH THE SUN" IS THE HOME OF AN ITALIAN ENGINEER IN VERONA, ITALY. THE TOP ROTATES DURING THE DAY BY MEANS OF A SENSITIVE MOTOR.

Keystone



Acme

THESE GALVANIZED CANS FASTENED ON THE PATIENT'S ARMS AND LEGS HELP TO CREATE A VACUUM TO REVIVE HIS FROZEN LIMBS. THE DEVICE HAS PROVED SUCCESSFUL IN CASES IN WHICH AMPUTATION WAS FORMERLY THE ONLY REMEDY.

A DAY in the LIFE of BERTIE BEAR

A STORY IN PICTURES BY JOHN DUKES McKEE

SCHOOL AND HEALTH

A Department Conducted by J. MACE ANDRESS, Ph.D.

67 Clyde Street, Newtonville, Mass.

Knowledge, Habits and Attitudes

THE SIXTH ARTICLE IN A SERIES ON THE CLASSROOM TEACHER AT WORK

TEACHERS and health educators are agreed that in the instruction and training of children they should acquire reliable knowledge about health and should form good habits and gain wholesome attitudes.

Historically the acquisition of knowledge led all other pursuits. It was naively assumed that knowledge meant power and that it was translated into behavior. Certainly there is some truth in this belief. It is easy to see how some of the newer knowledge has influenced the behavior of people. Witness, for example, the use of tomato juice in restaurants and homes since the discovery that it has a high vitamin C content. Consider also the increased consumption of yeast since it was found that it was rich in vitamins.

Knowledge, however, does not insure action. This has been found in a number of scientific tests that have to do with health and morals. It has usually been accepted without question that if children were given a knowledge of the Bible they would walk the straight and narrow way. Tests of both normal and delinquent children do not bear this out. One study shows that a delinquent boy who rated only 2 points in Bible knowledge did not lie or cheat while a girl who achieved 100 points, or perfection, in her Bible rating was at the bottom of the scale when it came to the practice of the moral virtues. Many studies show that it is impossible to grade children on moral virtues or the practice of health from knowledge tests. This does not mean that children should not acquire facts, but it doubtless does mean that knowledge needs to be linked with desire if it is to function in a practical way.

The best teachers today are trying to find out the needs of their pupils before they really begin their teaching. When one teacher was asked about her first step in teaching spelling she replied, "First, I give the children a preliminary spelling test to find out what words they can spell and what words are difficult. Then I plan my spelling lessons accordingly." How sensible that is. If every member of your class can spell January why spend any time on it? But if 90 per cent misspell February then that is one of the words that needs to be taught. Good teachers of hygiene are giving preliminary knowledge tests which have nothing to do with pupils' marks. The students are led to believe that the tests are taken for fun and also in order that they may know what to study. As a result of such tests the teacher plans the content of the material which she is to present.

In training children in health habits the need for investigation is also apparent. Sometimes the study of a group of children in a locality offers valuable suggestions to teachers. For example, a study of 47,000 lunches bought at school or brought from home and supplemented at school disclosed the following facts:

Only 1 child in 4 had milk.
Only 1 child in 5 had fruits and vegetables.
Only 1 child in 5 had as long as twenty minutes in which to eat.
Only 1 child in 9 had hot food.

As a result of this investigation definite steps were taken to train children in those habits which they really needed.

It would be natural to believe that children living in a dairy community would be liberal consumers of milk. This is not always so. In one county in New York noted for its dairying, 341, or 27.9 per cent of 1,221 children, received 1 cupful or less of milk daily. It was reported that nearly half of these, or 12.5 per cent of the total, did not receive any milk whatever. About 72.1 per cent received 2 or more cupfuls of milk daily. After such a study, schools have some of their work laid out.

Although such studies as those indicated may serve to guide the general trend of instruction in habit formation, the good teacher will keep her eye on the individual child who needs specific instruction.

The modern emphasis on mental health teaches the importance of having wholesome attitudes. Optimism, courage and a belief in oneself are among those attitudes that children need to have if they are to face the world successfully. These traits are difficult to arouse and guide. More will be said about them next month in the discussion of motivation in health education.

Health Teaching in June

THE GLORIOUS vacation time is at hand, for most schools close during the month of June. The majority of the children will not be back in school for two or three months. Now is the time when they are talking about the vacation and looking forward to it. The teacher has a chance to direct this powerful interest into channels that will promote good health.

It is an easy matter to find out where the individual children will spend their vacations. They love to tell about it in class discussions or through compositions and letters to the teacher. They will enjoy talking about the way in which they may have the best vacation conducive to relaxation, recreation and good health.

There is need of such instruction for all those who spend their vacations away from home, particularly those who are exposed to the menace of accident, disease and extreme fatigue. Many find that they need time to recover from the effects of a vacation spent unwisely. It is desirable that classes should discuss the general health problems of the summer vacation and also that each pupil outline an individual program for himself which may win the approval of the teacher.

In these days it is an unusual family that does not either go to the country or go adventuring on wheels for a few days or weeks. The problems of camping therefore lend themselves admirably to special health instruction in June.

Immediately one thinks of some of the most significant health problems. How may one be certain of a good water and milk supply? What diet is to be recommended for travelers? Is there danger in eating too much meat? Are vegetables to be recommended especially? What things are necessary for good cooking equipment? Is fried food desirable for children? How can illness be prevented? Should one be vaccinated against smallpox and typhoid? What accidents are likely to happen? What would you do if you got a sliver in your hand?

These are only a few of the many questions that would come up in a class discussion which would help to vitalize the health instruction.

SOLVING HEALTH EDUCATIONAL PROBLEMS

TESTING THE HEARING OF KINDERGARTEN CHILDREN

DELIGHT RICE
Supervisor of Lip Reading and Speech Correction, Berkeley, Calif.
BERKELEY, CALIF.

Good hearing is so necessary for progress in school work and poor hearing is such a handicap that the early testing of hearing is imperative. Miss Rice tells how kindergarten children have their hearing tested at Berkeley, Calif. This description should be helpful to all teachers in elementary grades.

BERKELEY is one of the cities in California that own a 4-A audiometer which is used for the detection of impaired hearing in pupils in the public schools.

At first only boys and girls above the second grade were tested. Those showing a hearing loss were advised to consult their otologists. As a result of the close follow-up work on the part of the school nurses, practically every child with defective hearing was accounted for, either through treatment or through an understanding on the part of the teachers and the pupils regarding the difficulty.

After attending to these boys and girls, it seemed wise to give heed to the young child with impairment of hearing in the incipient stage as the most effective work in preventing a hearing loss can be done in the early development of ear trouble. Therefore a plan has been evolved for testing with the 4-A audiometer the hearing of all the children in the kindergartens and the first and second grades.

It is first necessary to understand that the 4-A audiometer measures acuity of hearing. If the test shows good hearing there is nothing more to consider. If, on the other hand, poor hearing is indicated careful consideration must be given as there are many elements that may be involved. The apparent loss may be due to nervousness, fatigue, inattention, lack of understanding or language difficulties. The tests must be repeated until one is fairly sure that these factors do not exist. Sometimes a child with an apparent hearing loss is advised to consult an otologist, who may report that nothing is wrong. This procedure is more or less expensive, but we are now sure of the child's hearing, and that is worth all and may save an immense future economic loss.

In order to cut down these superfluous causes, the following course is used:

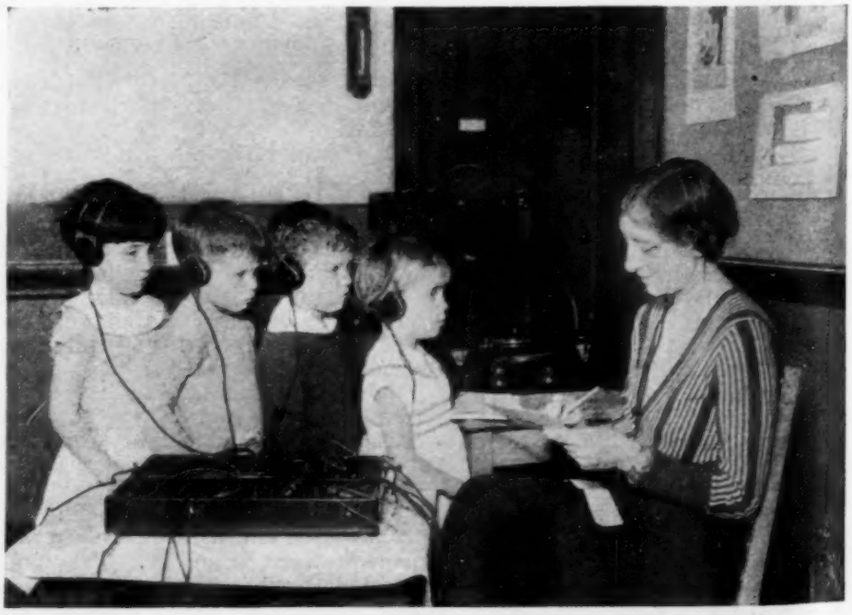
A week before the test is given at a particular school, teachers of the kindergarten and first and second grades are asked to meet the technician in charge of the hearing survey. The reasons for the examination and an explanation of the audiometer are given. The teachers learn that the young children cannot be tested in groups of forty since they cannot write the numbers. The teachers must describe the test to their classes so as to avert fear, not only of the instrument and its ear phones but of the stranger whom they are to meet. The teachers give drills, using numbers from 1 to 9 in groups of two. They start with a normal voice and gradually decrease the sound as is done by the speakers on the phonograph record. The children are taught in this manner to repeat the numbers which they will hear when the actual test is given.

The cards used in making the survey are also given to the teachers at this meeting, and they are requested to write the names of the children and fill in the other required information before the day of the test. By following such a plan a great deal of time is saved.

When the day for testing arrives the children have been taught what to expect and repeat and have had the lessons in such a manner that they are anxious to take the test. They look forward to the event and are disappointed if they are not included promptly.

A great item in making the survey is time; for this reason two pupils from the upper grades are assigned to aid the technician. One attends to winding the audiometer, turning the record and changing the needle. The other goes to the classroom and returns with four children and their cards as the test is made in groups of four. This monitor seats the children, puts ear phones on them and stands ready to give any help which may be needed.

The technician introduces herself and explains again what the children will hear. She wears a head phone and keeps a master sheet before her. The monitor starts the phonograph and, as the child repeats what he hears, it is writ-



DEFECTIVE HEARING AMONG THE PUPILS OF THE PUBLIC SCHOOLS IN CALIFORNIA CAN NOW BE DETECTED BY THE 4-A AUDIOMETER.

ten for him on his card by the technician.

There are four columns for each ear. If the child hears practically all the numbers in a column and indicates excellent hearing, no further test is given for that ear. However, if the test is not satisfactory a second column is used. If again the hearing appears defective a third trial and even a fourth trial are given. Occasionally, even though the child is prepared for the test he may become nervous and require more than four trials for one ear before satisfactory results are obtained.

This testing is like all laboratory work. The laboratory worker is positive only when his microscope shows the bacteria; the technician is positive only when the child repeats numbers that show he has heard correctly.

Sometimes groups of four can be tested quickly on one ear, and the monitor then changes the phones to the other ear. A delay in some cases is caused by repeating the test until the examiner is sure of the child's hearing.

When the time comes to change the ear phones they are adjusted by the monitor who then leaves the room to get the next four children to be tested. He returns with the children and waits outside the room until the operator has finished the test and the second monitor has opened the door. This plan prevents noise and confusion while the test is being given. The two monitors then proceed to arrange the children and prepare the machine while the technician establishes a friendly atmosphere. Under this arrangement from sixteen to twenty-four children can be tested each hour.

Because of the advance preparation given, a teacher decides whether her class can be tested in a group with each child doing his own writing. In this way the low second grades and even some high first grades have been taken in a group and time has been saved. However, even if the small group method is necessary up through the second grades, it is well worth the expense.

After the hearing survey is made, a report of all observations is sent to the school nurse, and she records this information on the health cards of the students. The nurse is particularly interested in children showing a hearing loss. She visits their homes and carefully explains how the hearing loss was detected. The parents are urged to consult their doctors about the child's ears. Their attention is called to the fact that often the trouble is only ear wax, that the defect may not mean any serious ailment, but that only an otologist can locate the trouble.

This standardized test is made regularly at the beginning of each term in every kindergarten in the Berkeley school department. In this way it is hoped that any permanent impaired hearing among the boys and girls may be averted and that much may thus be accomplished in preventing this handicap among adults.

A HEALTH EXHIBIT SUCH AS THIS ADDS GREATLY TO THE HEALTH TEACHING PROGRAMS IN RURAL SCHOOLS.

To Contributors: — *The editor of the School and Health Department will be pleased to receive articles dealing with the solution of concrete and practical health education problems in the school. Articles must not exceed 1,000 words in length. Stamps should accompany manuscripts to insure their return if rejected. All articles accepted will be paid for at regular rates. Address Editor of School and Health Department of* HYGEIA, *67 Clyde Street, Newtonville, Mass.*

COUNTY FAIR FEATURES

ROBERT W. OSBORN
Executive Secretary, Buffalo Tuberculosis Association
BUFFALO

Fairs offer an excellent opportunity to present to teachers, pupils, parents and the general public, exhibits that have to do with school work. Mr. Osborn describes an unusual exhibit intended especially to promote healthy living in rural schools. The photograph that accompanies the article is worth careful study.

THOUSANDS of visitors to the Erie County Fair at Hamburg, N. Y., last August viewed the annual exhibit of the Buffalo Tuberculosis Association, which presented fundamental aids to the promotion of health and well being in the classroom. All equipment had been borrowed for the exhibit.

The exhibit message was intended primarily for trustees, teachers, parents and children of one and two room rural schools where, unfortunately, in far too many instances sanitary equipment is lacking even in this modern age. It was rightfully concluded that classroom health teaching in the rural school cannot proceed on a sound basis until the school sanitary environment is in accord with desirable health practices. Every suggestion offered a practical set-up for teacher-pupil activities in health instruction.

Professional workers were in attendance to explain and discuss the exhibit, which was placed in the lobby of the fair's educational building.

A window was utilized to show the value of double roller shades to control light at both top and bottom. Screens for windows and doors were suggested. Types of window ventilation were also reviewed.

The next section asked the question, "Is your water supply safe?" and recommended that the local health officer be consulted for a test by the state laboratory. Containers for securing samples of water and methods of procedure were displayed. A unit for supplying sanitary drinking water was next in order. For schools having running water, an approved type of drinking fountain was illustrated by a large black and white drawing. For other schools, a drinking water container with a faucet was placed on a stand constructed by pupils.

Under the faucet was a shelf on which to place the drip pail. A covered pail was kept under the bench, to be used for carrying water. It has been found that some schools still use the drip pail in which to carry drinking water! Individual paper cups in a holder and a wastepaper basket completed the unit. For schools which do not have funds to purchase cups a school constructed cupboard for holding individual drinking glasses was presented.

Then came the facilities for making handwashing easy and pleasant. This included paper towels, liquid soap and running water. Where running water is not available, a method of handwashing was demonstrated by use of a watering can, without the sprinkler, and a waste water pail. This is operated very simply; one pupil pours from the pail with the spout for another who is washing his hands over the waste water pail. Liquid soap was made available from a container or by means of a large oil can.

Another wall section suggested a blackboard record of classroom temperature at specified hours in order to secure more uniform degrees of from 68 to 70 F. Here also were shelves for lunch pails, hooks with hangers arranged according to heights of pupils, and a movable rack for those ever present and usually damp and muddy overshoes. This rack may be moved near the stove so overshoes will be warm and dry at recess or closing time. "A place for everything and everything in its place" was the slogan.

In the foreground were adjustable and movable desks, which were a center of attraction to most adults who remembered the uncomfortable desks of their own school days. Visitors could easily visualize how readily these desks would fit in with the various activities in the school of today.

Health teaching materials, teaching units and posters were arranged in the exhibit room. These materials are part of the Child Health Workshop which the association maintains at its headquarters for professional workers, parents and teachers.

MAKING CHILDREN MILK-CONSCIOUS

ELEANOR L. GLAESER
VALHALLA, N. Y.

A concrete demonstration of what food will do for health is far more valuable than any amount of talking which the teacher may do. With the help of her pupils, Miss Glaeser staged an interesting animal experiment in which the foods spoke for themselves.

DURING a time of financial hardship when it is necessary to economize, some parents unthinkingly cut down expenses by taking away from children the necessary body building foods, especially milk. The children in my schoolroom needed more milk. How could I make them see the disadvantages of not using enough of it? They knew milk was valuable, but this did not affect its use in the home. Something vivid that would impress them so much that they would carry the message to their homes was needed as an example. I knew that work with white rats would catch their attention and be so delightful that they would talk about it at home.

Before beginning the object lesson described in the following paragraphs, the children were asked how we could find out what foods were best for us. They immediately suggested the use of animals and were led into a discussion of the advantages of using white rats instead of cats, dogs, birds or chickens, all of which they suggested could be used. They themselves decided to feed two white rats white bread and tea, because more in the class drank tea than drank coffee, and to feed two others whole wheat flour and dried whole milk. In preparation for the coming of the rats the boys of the class made two suitable wire cages with separate tops and bottoms and put in water and food protectors.

The rats arrived on a Friday, so that by the following Monday they had become accustomed to their new surroundings. On Monday each child handled the rats, and we noted their healthy condition. This was indicated by their pink shiny eyes, clean noses, pink tails, feet and ears, soft glossy fur and firm bodies and by their playfulness. The children then chose the following names, determined by the future diet of the animals: the two larger ones, which were in cage number 1, were called White Bread Eater and Sleepy Head Tea, and Bright Whole Wheat and Sturdy Whole Wheat were in cage number 2. The rats were then taken down to the local drug store to be weighed since there were no gram scales at the school. Each rat was in a separate tin can that had already been weighed and marked. Each Monday the rats were weighed in the same cans. A line graph, new work for the fifth grade, was started on the blackboard and attended to by the children.

In connection with the science work the class studied about the care of pets. It was decided that the rats would have to be cleaned daily and that the cages and food cups should be sterilized once a week. All the children wanted a chance to be caretakers.

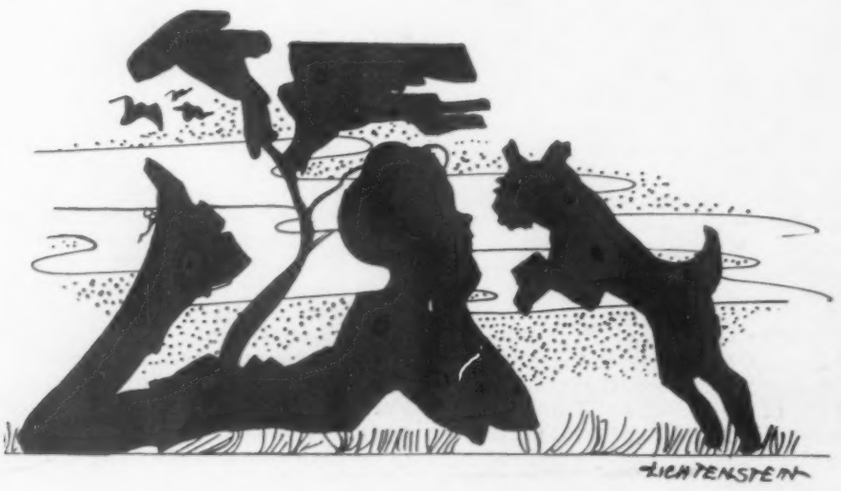
In a book by Mary Swartz Rose, entitled "Teaching Nutrition to Boys and Girls," which was published by the Macmillan Company in 1932, we found the following diet which we adopted as suitable for the rats:

> Each week one and two-thirds ounces of dried milk and five ounces of whole wheat flour was measured out. One pair of the rats consumed this amount weekly.
>
> The other pair ate seven ounces of fresh white bread weekly, and fresh tea daily.

As soon as our experiment was in progress we began to study milk and its value to our growing bodies. Then we studied about calories and planned a breakfast, lunch and dinner suitable for a fifth grader as outlined in the book by Mary Swartz Rose.

During the second week of our experiment the two rats that were being fed white bread and tea caught colds. The children suggested giving them castor oil, which we did. We pointed out that their illness occurred because they were in a rundown condition although they had gained weight. Later one of this pair was placed on a better diet, and her cold cleared up, but the other's cold continued throughout the experiment.

Over the week-end of the second week, Sleepy Head Tea had a litter. On Monday the children immediately suggested changing her diet from white bread and tea to whole wheat and dried milk plus evaporated milk. They also suggested



making another cage since the family should not be disturbed; and they, as a class, were to keep as quiet as possible so that they would not disturb the family. In the weeks that followed, the children watched the little rats grow. They recorded in their diaries the first appearance of fur, the first signs of their eating alone and finally their first playing together. The class was amazed at the rapid growth of the little rats and obtained a clearer idea of why we were using rats for our experiment.

The first part of the experiment lasted eight weeks. During this time we handled the rats often and discussed their condition of health. At the end of the eighth week each child had an opportunity to handle a healthy and an unhealthy rat and to compare the two. There followed an interesting summing up period in which even the dullest in the class contributed their observations. The conclusions are shown in the accompanying tabulation.

HEALTHY RATS

1. The eyes were bright, pink and clean, with wide open lids.
2. The noses were clean.
3. The tails and feet were pink with short hair on them.
4. The bones and flesh were firm, and the nails were in good condition.
5. They were strong and had no colds.
6. The fur was smooth and glossy, and the whiskers were full and long.
7. They were gentle, lively and not nervous.
8. They were smaller at the beginning of the experiment but outgrew the larger rats.

UNHEALTHY RATS

1. The eyes were dull, with matter in the corners of partly closed lids.
2. The noses were not clean.
3. The tails and feet had no hair and were scaly; the joints in the feet were slightly bent.
4. The body felt empty and flabby; the nails were in poor condition.
5. They both had colds again.
6. The hair was coarse and falling out; the whiskers were short and few.
7. They fought each other and were very restless and nervous.
8. There was not any difference in their size; they were the same size at the end of the experiment as at the beginning.

At the end of this period some one suggested that we change the diet of White Bread Eater and Sleepy Head Tea to whole wheat bread and dried whole milk; at the end of the fifth week we had put Sleepy Head Tea back on her original diet. This necessitated keeping the rats longer. By the end of another six days they had gained approximately 20 Gm. each.

I felt that this experiment was successful in accomplishing my purpose. The children did carry home to their parents the purpose and the results of our experiment, and it was clear that an impression was made for there was an increase in the amount of milk used. This was helped along by the fact that the month of October was state-wide milk month. Of a class of twenty-eight, seventeen now drink more milk; one boy increased the amount of milk he drank from 1 glassful to 1 quart a day; another boy, who before obtained his milk only in foods, now added 1 glassful a day to his diet.

The experiment stimulated an interest in written English which resulted in the writing of diaries, and the writing of business letters to obtain food and information concerning the rats. Oral English was improved by the discussions and by the presentations of our experiment at a meeting of the Parent-Teachers' Association and also before the health council of the high school students from a neighboring town. Science study was introduced through the daily and weekly care of pets. Reading interest was increased by the reading of a story, "The White Rat," published by the Evaporated Milk Association.

Although the experiment has ended, its purpose continues in the form of special weight charts. All the children are trying to help it on its upward journey each month. The reports are submitted for the parents' inspection every three months so that they may know how the children are growing.

NEW HEALTH BOOKS
for teachers and pupils

THE SLEEPING ROOM OF TOMORROW

By Donald A. Laird, Ph.D. Pp. 15. Holland, Mich.: Master Bedding Makers of America, 1935.

DONALD LAIRD, who has made so many and such valuable studies of sleep, presents some valuable ideas dealing with the problem of sleeping quarters that are conducive to restful sleep. Teachers could use this pamphlet to advantage as the basis for one or two lessons in hygiene.

A PLAN FOR A LABORATORY MANUAL IN HEALTH EDUCATION FOR ELEMENTARY GRADES

Mimeographed. Pp. 39. Knoxville, Tenn.: Tennessee Valley Authority.

THIS EXCELLENT piece of work, organized under the direction of Miss Elma Rood and her associates, is one of the best contributions in health education that has appeared for some time. It is a textbook for teachers and reflects actual work in the field.

This type of extension work in which the school serves as a laboratory was first begun in the Child Health Demonstration at Mansfield, Ohio. Ashland College, Peabody College, the University of Michigan and the College of the City of Detroit developed this type of work. At the present time seventy-five teachers are enrolled in the TVA area.

The purpose of this work book is to help the teacher to find her health program within her own school and to aid her in developing a technic of solving her problems constructively and educationally with her pupils. It is expected that this work book will give the teacher basic principles on which she may build an individualized program drawing on such help as the community affords.

MINUTE STORIES OF FAMOUS EXPLORERS

By Jerome S. Kates. Price, $1. Pp. 155. New York: Grosset & Dunlap, 1934.

BOTH OLD and young love real stories of adventure. The author of this unusual book presents brief stories of the world's greatest explorers. Each story requires only two pages. On the first of the facing pages is a picture of the explorer with a story about him; on the other page is a map on which the voyages and journeys of the

(Continued on page 566)

New Books on Health

THE POPULAR PRACTICE OF FRAUD

By T. Swann Harding. Cloth. Price, $2.50. Pp. 376. New York: Longmans, Green & Co., 1935.

THE AUTHOR of this volume is a prolific writer in fields allied to science. As an employee of the Food and Drug Administration he has had opportunity to become particularly acquainted with the nostrum field. His book opens with a history of attempts for the development of corrective legislation. He discusses the history of quack remedies and the relationship of fraud to scientific progress, illustrating his accounts with innumerable instances available in the literature of the subject. In order to make his case, however, Mr. Harding finds it necessary to romance and repeatedly to set up straw men in order to knock them down. He builds his book largely from investigations made and published by the American Medical Association, yet he does not hesitate to attack the work of the American Medical Association in instances in which he himself has made no investigation and in which he simply does not understand what it is all about.

His book shows repeatedly the evidence of haste in preparation by its misspelling of words and by its chemical interpretation of biologic material. He seems to have worked out satisfactorily in his own mind the proper status of mercurochrome. In fact, one gets the impression from reading this book that nobody knows anything except T. Swann Harding and that he is always right; yet T. Swann Harding has initiated nothing and does not hesitate to borrow extensively from all those whom he presumes to criticize. His volume is a hash and rehash of a great deal of excellent writing on the subject. He criticizes periodicals that have carried material which eventually was found to be fraudulent, not realizing that the times change, that new discoveries are made and that evidence is necessary before taking action.

Altogether, because of the hasty method of preparation, the confusion of material and the errors of judgment, it becomes impossible to recommend this book although the industry of the author in collecting all this material ought to be encouraged. In fact, most of the trouble with Mr. Harding is his failure actually to take enough time or trouble to investigate before criticizing. He spends a great deal of time attacking the volume called "100,000,000 Guinea Pigs," yet his own book is subject to the very faults he is criticizing in that work.

MORRIS FISHBEIN, M.D.

MAKING OUR MINDS BEHAVE

By William S. Walsh. Cloth. Price, $2.50. Pp. 277. New York: E. P. Dutton & Co., Inc., 1935.

THIS BOOK is described as a popular presentation of psychology and psychoanalysis. It would be more accurately described as advice on developing the personality. The reader would seek in vain for any adequate exposition, however popular, of the principles of psychology or of psychoanalysis. It is a series of chapters giving more or less trite advice on how to overcome undesirable personality traits and how to emphasize the more desirable ones. The book does not say anything that has not been said at least as well before. Owing to certain peculiar tricks of style, the book is much less readable than many. The author has fallen into the habit of writing a sentence and then for emphasis repeating the last phrase or the last word, sometimes even going so far as to reiterate the closing thought in one sentence three times. This slows the reading, and the habitual repetition eliminates all force of emphasis. Lengthy parenthetic interpolations in the book tend to confuse the reader, and in a few instances they might cause the superficial reader to gain an impression precisely opposite to what is obviously intended. The material in this book could have been expressed more briefly and in a much more interesting manner.

W. W. BAUER, M.D.

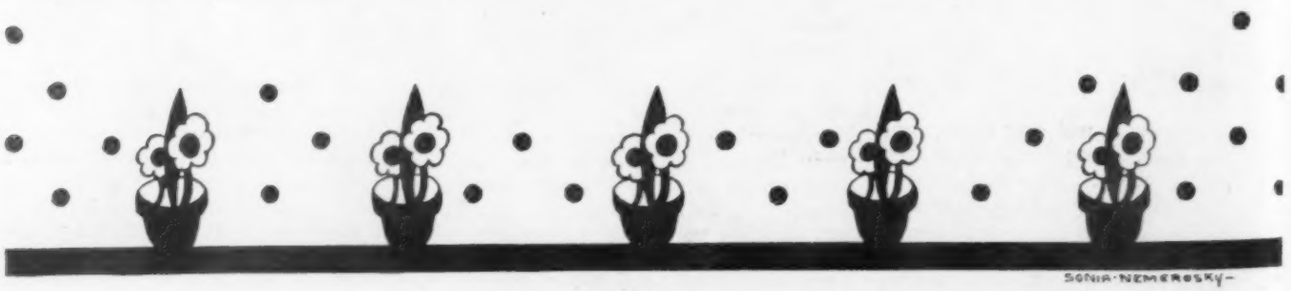
[NOTE.—Books reviewed or mentioned on this page, other than those published by the American Medical Association, should be ordered from booksellers or direct from the publishers. They may not be ordered through HYGEIA or the American Medical Association.]

ACHIEVEMENT SCALES IN PHYSICAL EDUCATION ACTIVITIES

By N. P. Neilson and F. W. Cozens. Cloth. Price, $1.60. Pp. 181. New York: A. S. Barnes & Co., 1934.

THIS VOLUME provides numerous tabular data concerning the ability of boys and girls of various ages to perform certain athletic feats. The book begins with a list of events, describing the technic of performance for each, and then proceeds with tables for boys and for girls, indicating accomplishments in these events for those of various ages and classes. The tables are classified by height, age and weight into eight groups.

M. F.



QUESTIONS AND ANSWERS

Oleomargarine

To the Editor:—In a recent issue of HYGEIA the statement was made that a certain brand of oleomargarine is said to contain vitamin A. Is this due to the fact that the oleomargarine contains a definite amount of beef fat? If so, how does the vitamin content of beef fat compare with that of butter? Is there any basis to the claim made by manufacturers of certain products that vegetable fats are more easily digested than animal fats? I realize that the higher combustion point is a point in their favor for frying, but would a cake made with vegetable fat be any easier to digest than one made with animal fat?

M. P. K., Michigan.

Answer.—Oleomargarine prepared solely from selected beef fat and the usual small amount of milk solids, derived from milk in which the beef fat is churned, can be expected to be equivalent to butter in nutritional values, in calories and in vitamins A and D. The content of vitamins A and D in this type of oleomargarine is derived from the beef fat and milk used. In general, butter is richer in vitamin A than unselected beef fat, which is rated as a good source of vitamin A only.

Oleomargarine or margarines prepared from vegetable oils can be expected to contain little or no vitamin A and no vitamin D. If, however, these vegetable margarines are churned in milk, then there will be at least a small amount of vitamin A. It is understood at the present time that most margarines or oleomargarines are being prepared from vegetable oils. The one oleomargarine known to be prepared from beef fats and churned in milk is a product accepted by the Committee on Foods which, according to the label, "contains vitamins A and D." Another oleomargarine containing only a small amount of vitamin A is now on the market. The distinction between these two products is depicted by the labels.

Animal fats and vegetable oils, such as are commonly marketed, have practically the same digestibility. Animal and vegetable fats and oils which are liquid or soft at the temperature of the body are practically equivalent in digestibility. Those fats of either class which are firm or relatively hard at the temperature of the body are more difficult to digest. Cakes prepared from recipes including the usual animal or vegetable shortenings available on the market have approximately the same digestibility.

There is much current advertising which leads the consumer to believe that the advertised shortenings are superior in digestibility to the common shortenings in use or that cakes prepared from such shortenings are superior to cakes in which the common shortenings are used. This form of advertising is considered highly deceptive and misinformative.

Antitetanic Serum

To the Editor:—Is it advisable to give antitetanic serum in the treatment of all first aid injuries wherein the skin is broken? It is well known that the use of antitetanic serum gives a disturbing reaction when administered to some patients, especially if they have been inoculated previously with serums derived from horse plasma. Is it necessary or advisable to use antitetanic serum in any or all industrial injuries?

W. S. B., Delaware.

Answer.—In industrial medical work, as elsewhere, many practices which might be theoretically desirable may be quite inexpedient from a practical point of view. The routine administration of antitetanic serum for every injury involving skin breaks might conceivably avoid an occasional additional case of tetanus. However, valid objections offset any justification for this custom in all save a few types of industry. Discomforting reactions as a rule follow such injections, and frequently such reactions lead to complete work disability for as long a period as twenty-four hours. If every injury, however small, that included breaks in the skin, were followed by antitetanic injections, most workers would refuse the services of the medical department and would conceal all but the more severe injuries. This, of course, is undesirable. It is of greater significance that 100 workers should be protected against ordinary pyogenic infections than that the medical department should seek 100 per cent protection against tetanus, if by doing the latter, the medical department loses the cooperation of the working force. Moreover, in large plants wherein scores of new cases of skin injury arise daily, the cost of antitetanic serum for routine purposes would be prohibitive.

A few types of industry might well consider the invariable use of tetanus antitoxin; such industries include tanneries, brush factories, packing houses and circuses. Even among these industries with much increased hazards to tetanus, the frequency of tetanus cases is not known to be alarming.

Practical consideration prompts the opinion that in industry, as heretofore, the use of antitetanic serum should be limited to selected cases at the discrimination of the physician. Always such prophylactic measures should be carried out in the following types of injuries: open fractures; gun shot wounds; penetrating injuries of any variety; severe lacerations; any injuries involving contact with animal excreta, hides, and so forth; any injuries that have come in contact with the soil, and any other injuries in which it might be expected that air would be excluded, thus producing the anaerobic conditions favorable to the growth of the tetanus organism.

It is granted that the highest concepts of professional responsibility might lead to the advocacy of tetanus antitoxin for every skin breaking injury. But it is equally maintained that industrial medicine is part of a very practical world in which any such medical custom would eventuate in more loss than gain.

If you have a question relating to health, write to "Questions and Answers," HYGEIA, enclosing a three-cent stamp. Questions are submitted to recognized authorities in the several branches of medicine. Diagnoses in individual cases are not attempted nor is treatment prescribed. Anonymous letters are ignored.

Fragilitas Ossium

To the Editor:—I have a baby, born May 27, 1934, who has an abnormal bone condition. He had both legs broken at the hips and one arm broken in two places shortly after birth, but they are now healed. His legs are considerably bowed between the hips and knees and between the knees and ankles. He has good movement of legs and arms but tends to clench his fists, holding the thumbs under the fingers. Is the fact that his muscles and joints do not seem to be as limber as those of a normal baby a usual accompaniment of this condition? We have been feeding him cow's milk, a vitamin B preparation and a teaspoonful of an effervescent alkali, daily. He also gets orange juice, cod liver oil and sunbaths. He weighed 5 pounds, 15 ounces at birth and now weighs 7 pounds, 8 ounces. We massage his legs with olive oil a few minutes each day. Would you consider this a means of straightening them? Please tell me what chances the baby has of overcoming the condition and advise me about his diet or calcium intake. Is this bone condition the cause of his weight remaining low?

M. W., Montana.

Answer.—The condition from which this baby is suffering is a rare one and is due to faulty structure of the bones, which have a delicate structure and are easily broken. The condition is sometimes known as the glass bone disease and goes by such scientific names as fragilitas ossium, osteogenesis imperfecta, or osteopsathyrosis, all of which simply mean brittle bones. The condition exists from the time that the bones first begin to be formed before the baby is born. The cause of it is not known; sometimes ancestors of the child have had similar conditions, but this is not often the case. In some children with a condition such as this the whites of the eyes have a distinctly bluish tinge, and this tendency to eye coloring is seen in other members of the family who may never have had broken bones.

It has not been proved that the condition is caused by any disease on the part of the mother before the baby's birth or by any fault in her diet or mode of life; nor has it been proved that it is the result of the faulty action of any of the glands. The condition is quite a different one from rickets, the difference being easily seen in an x-ray picture. All the bones in the body are brittle and easily broken; fortunately the fractures are usually not painful, and they heal fairly well if they are properly splinted for a time. As the child grows older, the bones sometimes become firmer in structure. However, this may not occur until about the age of puberty. In some instances there have been no further fractures after the age of 13 or 14 years.

There is no method of treatment known at present which can be counted on to strengthen the bones. Diets with large amounts of calcium and phosphorus, cod liver oil, viosterol and various gland preparations have all been tried without appreciable success. The same is true of massage, electricity and other forms of physical therapy. A baby or child with this condition should be fed, like any ordinary normal child, on a good nutritious and well balanced diet. He has to be carefully protected against injury because of the brittle bones. When fractures occur, the broken fragments of bones should be held in place by splint or other appliance until healing has occurred. When a bone has knitted together in the wrong position so as to cause a badly bent arm or leg, the only way to straighten it may be to operate, put it in the proper position and allow it to heal again. Sometimes these children hold their muscles rather tight, possibly to protect the bones from injury or to prevent movement of broken fragments. The bone condition does not have any particular effect on the nutrition, although these children are rarely fat.

The Dye Test for Gallbladder Trouble

To the Editor:—What is the dye test for gallbladder trouble, in which iodicon is used? Are there sometimes permanent ill effects from its use? What are the temporary ill effects? What may be done to counteract such effects? Should the dye be used on a person suffering with spinal arthritis?

S. E. S., Illinois.

Answer.—The dye test for gallbladder trouble depends on the introduction into the body of substances which, when excreted by the liver, will pass with the bile into the gallbladder and cause it to cast a shadow on a photographic film when exposed to the x-rays. Preparations such as iodicon used for this purpose are soluble complex organic chemicals combined with iodine or other substances which in solution will obstruct the x-rays and at the same time be nonpoisonous to the body. The shadow seen on the x-ray film is thus a silhouette of the gallbladder and shows the outline of the gallbladder and its position in the abdomen.

The dye is usually given at night, either by mouth or by direct injection into the blood through a vein. X-ray examinations are taken at intervals during the next day, and finally a full meal containing fat is given to stimulate the gallbladder to contract. It is thus possible by means of shadows on the x-ray film to trace the filling and emptying of the gallbladder and to gain an idea of its size, position and contents.

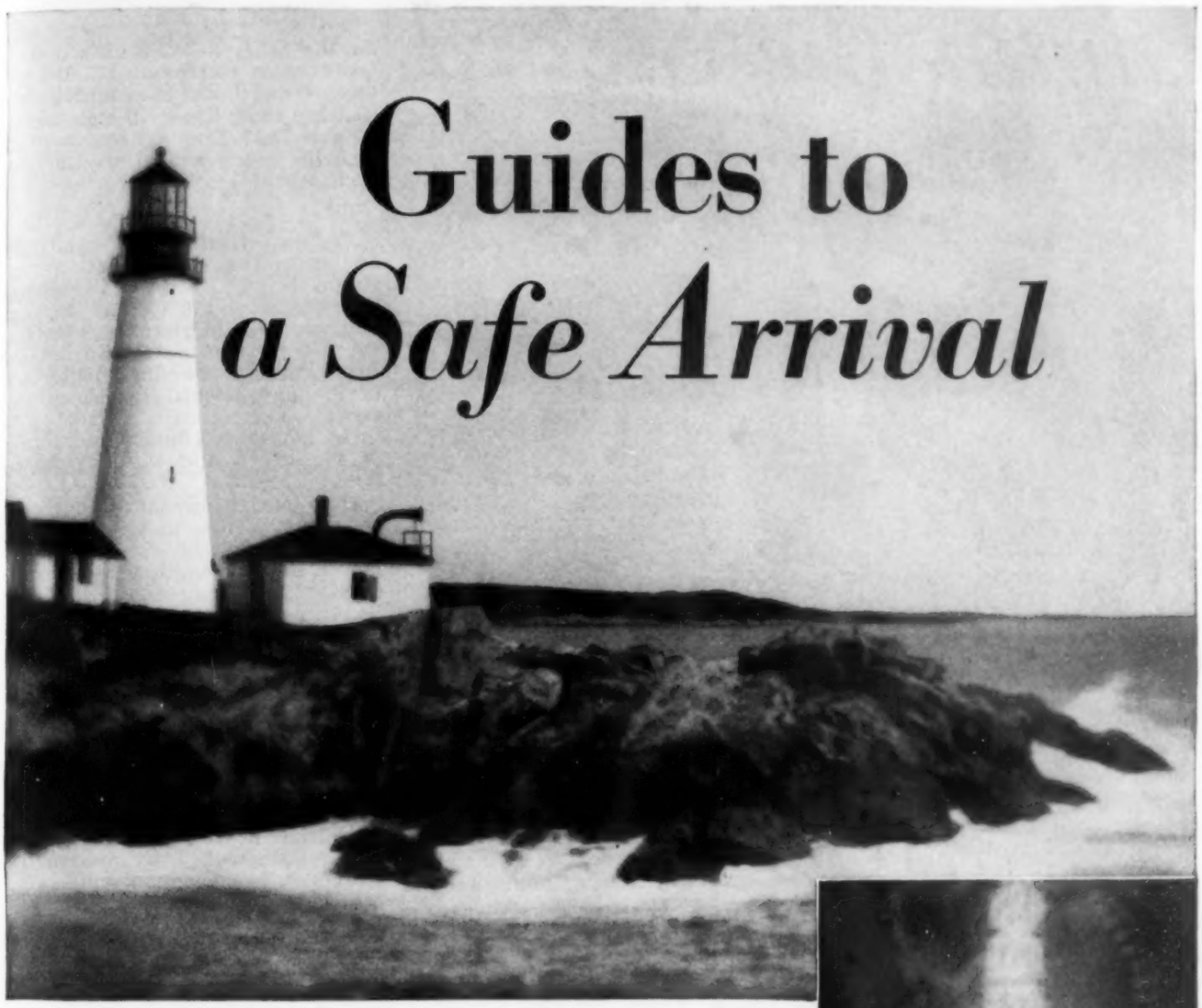
Gallstones consist chiefly of cholesterin, a substance derived from the bile which does not obstruct the x-rays and does not cast a shadow on the film. Lime salts are frequently mixed with the cholesterin or occur in a layer coating the gallstones. If there is enough lime present, the shadows of the gallstones will show in the x-ray film even without the use of dye. If, however, the calculi or stones do not contain any lime, the presence of the stones may still be determined by the dye test since they displace their own volume of the opaque fluid in the gallbladder. They also give rise to round areas in the pictures which contrast with the heavier shadow cast by the rest of the gallbladder. These are called negative shadows.

Still other information may be gained by this method as to the condition of the gallbladder. If the duct leading to the gallbladder is obstructed by a stone, by thickened wall or by tumor, the bile which contains iodine will not enter the gallbladder, and no shadow will appear on the films. Changes in the wall of the gallbladder and deformities caused by adhesion can sometimes be determined.

With the improved methods of manufacture and use of the dye test, permanent ill effects from the test are extremely rare. It is conceivable that if the test were used in a patient whose liver had already been seriously damaged by disease, ill effects might follow; but such a condition would usually be evident, and the physician would not proceed with the test.

Laxative effects of dye are not unusual but are rarely severe. Sometimes there is nausea. Chills following the injection of the dye into a vein are usually due to improper administration rather than to the chemical itself. These effects are rarely serious and do not call for special treatment.

There is no apparent reason why the dye test should not be used in a patient who has spinal arthritis. Pain in the region of the right upper portion of the abdomen and lower part of the chest may be due either to gallbladder disease or arthritis, and the dye test will assist in determining whether either or both conditions are present.



Guides to *a Safe Arrival*

WHEN a physician pilots a little newcomer into the world, visible aids are as welcome and important as to the captain coming in from the sea. Such guides promote safety. Even more. They aid the physician in determining proper measures in order to expedite the arrival.

What are a physician's visible guides in attending a pregnancy? Radiographs. They inform him of baby's size and position—of mother's bone formation. They warn him of hazards that must be avoided. They aid him in judging what procedure should produce the surest, safest results. He can act promptly with confidence.

Thus, the radiographic examination is an important element in the expectant mother's prenatal care. When the physician suggests it, you know he is advising a most desirable safeguard. For radiographs supply positive, visual information that can be obtained in no other way.

Reproduction of a radiograph showing an unborn living child.

NRA CODE

Mail this coupon if you would like to receive a copy of the free Eastman booklet, "X-rays and Health."

X-RAYS HELP TO KEEP YOU WELL

EASTMAN KODAK COMPANY, *Medical Division*
353 State Street, Rochester, N. Y.

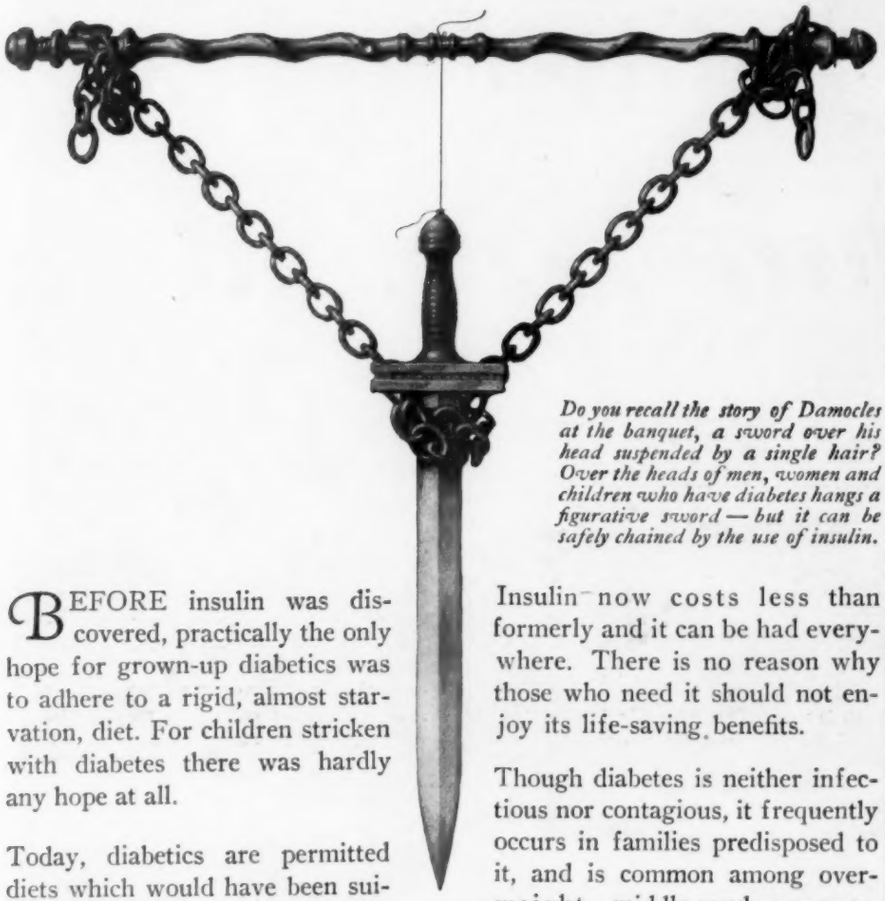
Please send the free booklet, "X-rays and Health."

Name_____

No. & St._____

City & State_____

Chain the Sword



Do you recall the story of Damocles at the banquet, a sword over his head suspended by a single hair? Over the heads of men, women and children who have diabetes hangs a figurative sword — but it can be safely chained by the use of insulin.

BEFORE insulin was discovered, practically the only hope for grown-up diabetics was to adhere to a rigid, almost starvation, diet. For children stricken with diabetes there was hardly any hope at all.

Today, diabetics are permitted diets which would have been suicidal in pre-insulin days. The majority of children who are protected by insulin are enabled to study and play and live like normal children.

A healthy body makes its own insulin—the hormone supplied by the pancreas. Diabetes results when there is a deficiency of insulin. When the disease is apparent, the proper amount of injected insulin supplies a substitute for this essential element.

Injection of insulin is a simple matter. Most doctors show their patients, young and old, how to make the injections themselves.

Insulin now costs less than formerly and it can be had everywhere. There is no reason why those who need it should not enjoy its life-saving benefits.

Though diabetes is neither infectious nor contagious, it frequently occurs in families predisposed to it, and is common among overweight, middle-aged persons.

Those inclined to be fat, particularly if related to a diabetic, should be especially careful of their diet.

In its early stages, diabetes causes little or no physical discomfort, but its presence can be detected by a doctor's examination and laboratory tests.

The Metropolitan will be glad to send, without cost, the booklet "Diabetes" which tells how to guard against the disease, describes its signs and causes, and gives information about diet. Address Booklet Department 635-Z.

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, PRESIDENT ~ ONE MADISON AVENUE, NEW YORK, N. Y.

© 1935 M. L. I. Co.

Death by Electricity

To the Editor:—Why does a man die when electrocuted? Do his heart and brain stop functioning at the same time? If not, which stops first? Does the human body shrink when treated with a fatal charge of electricity?

E. M., Florida.

Answer.—Death from electricity is due to two causes, first, direct action through killing of the tissues by passage of the electric current and, second, interference with the nerve centers, especially in breathing. Perhaps the most important of the first effects is that on the heart. The electric current disturbs normal rhythmic contraction of the heart, and the circulation fails.

High tension currents, or currents of high voltage used for transmitting electricity over long distances, kill by stopping the nervous centers, including those used in breathing. The heart continues to beat, and in many instances it is possible to resuscitate the patient by artificial respiration, just as drowned individuals can be revived.

Low tension currents, or currents of 1,200 volts or less, such as the railway trolley and household lighting circuits and even most industrial power circuits within the buildings, kill by interfering with the heart action while the breathing continues. There are some minor differences between the action of alternating and direct currents, although essentially their mode of action is the same. Alternating currents are more dangerous than direct currents. Direct currents are more liable to burn at the points of contact, while alternating currents are more liable to disturb the heart beat. The faster the alternation, the greater the danger with alternating currents up to 150 cycles a second. Ordinary household lighting currents are either 60 cycles a second or 25 cycles a second, more often the former.

Spark discharges, such as occur when short circuits are made between live electric conductors, produce their effects primarily by suffocation and by burning.

The human body does not shrink at once when treated with a fatal charge of electricity. A certain amount of shrinkage, due to loss of water, occurs in the dead body no matter what the cause of death.

Human beings continue to be the *X* factor in automobile accidents, with the *speed variable* as the determining logarithm.

Do You Know—

1. On what basis does the medical profession have the right to challenge the world to match its spirit? *See page 494.*

2. What are the favorite haunts of the most poisonous spider in the United States? *See page 530.*

3. What are the causes of cataract in the eye? *See page 535.*

4. The several and important uses for dyes in the field of medicine? *See page 546.*

5. How physical examinations for airplane pilots differ from the usual procedure of insurance companies and the family physician? *See page 514.*

6. How a mother's diet may contribute to her child's allergic tendencies? *See page 524.*

7. What constitutes the ideal patient in the doctor's eyes? *See page 496.*

8. That many dessert powders afford a good medium for adding a quantity of milk to the diet? *See page 542.*

9. That doctors have sought music as solace for many hundreds of years? *See page 520.*

10. At what age periods, if any, people should worry the most about their health? *See page 527.*

11. That trench mouth may occur in both clean and dirty mouths? *See page 540.*

12. What stage of man's growth psychologists now regard as their primary interest in psychologic research? *See page 503.*

SCHOOLS
that make old age beautiful

A CENTURY ago only twelve Dentists were practicing in this country. Sunken, toothless jaws, rheumatic joints and twisted limbs were the natural, almost inevitable heritage of old age.

Since the first United States dental college was established one hundred years ago, a modern miracle has been wrought. While still too prevalent, these characteristic badges of old age are today largely due to neglect of the Dental Prophylaxis habit. The great dental colleges have developed and given to a great army of Dentists the scientific skill to make old age beautiful.

Medical authorities reveal that more than 85% of bodily ills have their inception in the mouth. Today your ethical Dentist can protect you against many of these diseases by means of an important treatment called Dental Prophylaxis. This involves a thorough inspection and cleansing of the teeth at least every three months in his office. This is something you cannot possibly do yourself—something your Dentist cannot do unless you acquire the Dental Prophylaxis habit and see him regularly.

Don't depend upon any dentifrice to do this. Don't be lulled into a false sense of security by the exaggerated claims often made for dentifrice. Acquire the Dental Prophylaxis habit. See your Dentist every three months. And then help him, by using a safe, honestly advertised tooth paste—one recommended by Dentists.

The American Dental Association maintains a group of scientists known as the Council on Dental Therapeutics. This body carefully tests dental products intended for professional and home use—awarding the "Seal of Acceptance" to those found safe and honestly advertised.

Dentists depend upon it. You, too, may use this dependable guide to the right tooth paste.

Both Iodent No. 1—for teeth easy to Bryten—and Iodent No. 2—for teeth hard to Bryten—bear this coveted A.D.A. Seal of Acceptance. And by continuing to make Iodent the safest and most effective tooth paste scientific skill can produce, we shall always strive to merit this Seal—our most prized possession.

ACCEPTED AMERICAN DENTAL ASSOCIATION

IODENT

Shaker-Cooked
STRAINED FOODS
FOR BABY
with new *finer* flavor

BABIES can lord it over grown-ups now. Their Gerber Strained Vegetables are canned an *exclusive* new way that gives them new, fresher flavor . . brighter color. Gerber Shaker-Cooking (patent applied for) shortens cooking time 50% to 60% . . preserves freshness . . cooks more uniformly . . avoids overcooking. Gerber's are specially grown . . fresher, richer in vitamins.

They're put through scientific processes which can't be duplicated at home. Air is excluded to protect *vitamins*. Moisture is regulated to save *minerals*. Straining is five times finer than kitchen sieves. Gerber's are *unseasoned* for serving as they are or for seasoning as your doctor directs. They'll save you tiring work . . and they're "better for baby."

Strained Tomatoes . . Beets . . Green Beans . . Vegetable Soup . . Carrots . . Prunes . . Peas . . Spinach . . 4½-oz. cans. *Strained* Cereal . . 10¼-oz. cans.

Ask Your Doctor

Send 10c for helpful new book on baby's daily care

Written by a former instructor of nursing, "Baby's Book" is full of practical hints on baby's bath, clothing, sleep and exercise—with pages for recording doctor's feeding and other special instructions.

Gerber's
Shaker-Cooked Strained Foods
Hy-6g

MOTHERS! Send for these helpful books. "Baby's Book" — practical information on daily care of baby, by Harriet Davis, R. N. "Mealtime Psychology," by Lillian B. Storms, Ph. D.— widely distributed to mothers by physicians for its practical suggestions in developing normal eating habits.

GERBER PRODUCTS COMPANY
FREMONT, MICHIGAN
(In Canada: *Grown and Packed by* Fine Foods of Canada, Ltd., Tecumseh, Ont.)
Check book wanted:
☐ "Baby's Book." Enclose 10c
☐ "Mealtime Psychology." FREE
(Enclose 10c additional if you wish picture of the Gerber Baby, ready for framing.)

Name .....
Address .....
City ..... State .....

(Continued from page 559)

adventurer may be traced. On this page are also a few thumb-nail sketches of conspicuous events in the life of the explorer.

Teachers who realize that almost any kind of historical material has suggestions for health teaching will see in this book some real opportunities. In facing some of the greatest difficulties ever encountered by man, these brave men combated accident and disease. Scurvy is often mentioned and also the importance of fresh vegetables in exploration. This book offers a chance to teach geography and health.

DEVELOPMENTAL PSYCHOLOGY

By Florence Goodenough. Price, $3. Pp. 619. New York: D. Appleton-Century Company, 1934.

AMID the deluge of new psychology books that have found their way into print this is one of the few that have a valid excuse for existing. It is intended to be a first book in psychology but differs greatly in its organization and content from the ordinary psychology. It is the business of children to grow physically and mentally, and in untechnical language, the author attempts to give a moving picture of what happens. There are many suggestions as to what may be done to guide the process.

ADOLESCENT PSYCHOLOGY

By Ada Hart Arlitt, Ph.D. Pp. 246. New York: American Book Company, 1933.

THE UNDERSTANDING of the adolescent is one of the enigmas of parents and teachers. This very readable book will help to give a better grasp of problems of adolescence. Hygienists will be especially interested in the chapters entitled "Disturbances in Adolescent Personality," and "The Hygiene of Adolescence."

The author defends the adolescent against the charge that the "younger generation" needs to be amused for he claims that there is no time left in the schedule for the development of initiative and use of resources.

In a suggested schedule including the minimum requirements of the average child we find that fifteen minutes of rest before luncheon and before dinner is recommended. This is a valuable suggestion, but in how many present-day high schools is there any opportunity for anything but rush during the noon

Baby Garments

MOTHER . . . . PROTECT YOUR BABY!

There's safety and comfort for baby's tender skin in VANTA's new *Silva Lining*. This wonderful fabric is soft as swan's down and smooth as a kitten's ear.

No Danger of Infection

VANTA layette garments are 100% steam sterilized by a special autoclave process, giving your baby the utmost protection. *No Pins, No Buttons.* Each garment comes to you cleanly wrapped in Cellophane.

Look for This Mothercraft Emblem

When buying layettes, ask your store to have a graduate of the Mothercraft course of training wait upon you. It means a year of hard study which makes a girl a professional saleswoman on all Infants' Wear.

Doctors and nurses enthusiastically recommend VANTA garments for the first two years.

WRITE FOR FREE BOOKLET . . . "Baby's Outfit" tells about preparing for motherhood; selecting baby's layette, etc. Contains 500 suggested names for boys and girls. Address Dept. H-6.

Earnshaw Knitting Company
Newton, Massachusetts

period? Before satisfying this sensible requirement it seems that it would be necessary to revolutionize the ideas of teachers, parents and children. It will be well to remember that living health is more important than learning words from a book.

FATIGUE: WHAT IT IS AND HOW TO OVERCOME IT

By Donald A. Laird, Ph.D. Pp. 18. Holland, Mich.: Master Bedding Makers of America, 1935.

"FATIGUE," says Donald Laird, "stamps the personality with peplessness and marks the face with lines and drooping muscles. Irritability, bad temper, and what laymen usually call nervousness are often symptoms of fatigue." He believes that little of our national fatigue is caused by physical work but that the mind causes fatigue. Much of this valuable pamphlet on fatigue has to do with relaxation and the choice of a bed.

SUGGESTIONS FOR A TEACHING UNIT IN MOUTH HYGIENE

By Anne Raymond. Price, 10 cents. Pp. 12. New York: Oral Hygiene Committee of Greater New York.

MISS ANNE RAYMOND who has done so much original work in health education has carried out an interesting experiment in dental hygiene for fifteen weeks in the kindergarten and first and second grades of several schools. Each class completed a teaching unit which integrated the knowledge on the teeth with the classroom curriculum. Plays, movies, zoos, circuses and scrapbooks were utilized. The plan was to transfer the children's natural interest in animals and in the teeth of animals to an interest in their own teeth and their care. Abstracts from the programs of three selected schools are offered in this attractive illustrated folder.

Teachers in the kindergarten and primary grades will find Miss Raymond's work suggestive.

CONFERENCE ON HEARING

The 1935 conference of the American Federation of Organizations for the Hard of Hearing, Inc., will be held in Cincinnati, June 2 to 6 inclusive. Headquarters will be at the Netherland Plaza Hotel.

because Mother keeps him comfortable with this Waterproof Powder

It's a wise mother who knows her baby powder! When you use Merck Zinc Stearate, after baby's bath, it forms a fine *water-proof* film over the sensitive skin, protecting it from the chafing irritation of wet diapers and perspiration.

Merck Zinc Stearate is pure, fluffy and light... satin-smooth to the touch and delightfully soothing to baby's skin. The patented self-closing top on the can makes it impossible to spill the powder accidentally. This is an essential safeguard for any powder used in the nursery.

Your physician and druggist will tell you that the name Merck on any product is a guaranty of purity and reliability. Merck & Co. Inc., *Manufacturing Chemists,* Rahway, N. J.

MAKE THIS WATERPROOF TEST TODAY

Shake some ordinary powder into the palm of your hand. Then pour a little water onto the powder and rub gently with your finger. You will find that the powder absorbs the water and forms a paste. This happens when baby's skin is wet.

Now make the same test with Merck Zinc Stearate. You will find that this waterproof baby powder does not absorb the water—that the water stays on top in little round drops. That explains why Merck Zinc Stearate protects baby's skin.

MERCK ZINC STEARATE

COUNTRY DOC

(Continued from page 534)

cessful fishermen; so after a time they started to walk.

They enjoyed their adventure, now that they were safe, and especially since they had come into contact with the notorious Strack. That would be something to tell when they got home. They had walked for some time when a car came speeding toward them, drawing up sharply when it was abreast. "We shot it out with him," said one of the men. "He turned into a dead-end road. Didn't know the country. Your car's there too. It's got some perforations you never saw before."

And there he was, indeed, when they reached the dead-end road, lying heavily and ghastly, half in the meager roadway and half in the scant grass, with little spots of crimson around him.

"There's your visitor of this afternoon. He's caught his last catfish," said one of the men exultantly. "Pretty near use him for a seine."

"When you said his arm was stiff we knew we had the right man," said one of them. "That was our tip. He had been wounded and bandaged up. See?"

"I've got to get out of here," said Will.

But Julian, professional in his attitude, did not turn away. The coat had been stripped from the man's body, and as Julian looked at the arm he studied the bandaging with student interest. He looked curiously at first, then intently, and a sinking feeling came into his stomach. Only one person in the world put on a bandage exactly like that.

"Y'see, he's dyed his hair," one of the men said. "They all do that."

"They stiffen up quick, don't they?" said another of the men, raising up an arm and letting it fall back.

"I want to go," said Julian to Will. "I can't stand it any longer."

"I do too." And then Will looked at Julian closely. "With all that, I believe I'm standing it better than you, Doc."

"I guess you are. When he flopped that arm . . . it got me. Would you mind driving?"

"And after the stories you tell about your lab work!" said Will. "Well, come on. The faster the better."

"We'll stay till the coroner comes," one of the men said. "The newspaper men will be along too. I expect they'll want pictures."

One of the men looked at Julian going toward the car. "Kids can't take it, can they?"

"It upsets them," said another.

What should he do? Julian thought swiftly as the car sped along the highway. He knew, of course, why his father had done it; he had been paid for it and had accepted the money to keep him in medical school. As for himself, he could say nothing, return to college and settle down to an honorable practice. But that wasn't ethics. "I can't do that." Should he say nothing to his father and never let him know that he knew? That, certainly, would be the kindest thing to do. The humiliation his father would suffer! His father might be found out, but there was not much danger of that, with Strack dead, he decided. It rested with him, Julian, and it rested badly.

"It certainly did get you," said Will, eyeing him. "I haven't seen you so still in a long time."

"It's enough to upset anybody."

"Sure is," agreed Will.

The journey was much too fast for Julian, for he dreaded the meeting with his father. If it became known, his father would, of course, be disgraced and barred from the Association. But even if it did not become known, Julian knew he did not want to get a degree on criminal money. Could he make some excuse and not return to college? No. His father would see through that. And it would hurt his father too. The third generation!

His father was in the rear yard, washing the car, when Julian arrived. "Hello, Son," he called. "I'll help you in with the fish. Musn't strain your back."

Julian stood, ill at ease, replying as well as he could to his father's banter until his father glanced at him suspiciously. "Say! you're taking your piscatorial defeat pretty hard, Son. Remember there's just as big fish in Little Squaw as have ever been taken out."

"Something happened, Father; something I think you ought to know about. Strack was killed today."

"That bandit? How did you hear that?"

"I didn't hear it. I saw it."

"No wonder you look so down in the mouth. Tell me about it. Don't keep me in suspense. Wait till I turn off the water." He went very slowly and turned off the water. "You mean you saw it with your own eyes?"

"Father, I don't think I want to go back to college."

His father looked at him sharply. "What do you mean by that, Julian?"

Now that he had started he felt an immense tenderness for his father, but he must continue. He could not turn back; nor was he sure that he wished to do so. "I saw the bandage on Strack's arm. I think you know what I mean. And that hair dye. And those quick collections."

Dr. Richey's world seemed to slip from under him. Caught by his son! A disgrace to the medical association, to his oath. But no one else knew, and no one else would know.

"What you think is true, Julian," he said slowly, in a tone very different from his early banter. "But don't condemn me. You musn't!" Turning, he looked to see whether Etta could hear, but the sound of rattling pans came reassuringly from the kitchen on the other side of the house. "One night she had gone to a committee meeting, and I was here alone. The doorbell rang, and when I opened the door two men were standing outside. 'Is this Dr. Richey?' one of them asked; and when I told him it was he said, 'My friend has hurt his arm and he wants you to fix it up. His still exploded on him.'

"I told them to come in. One of them carried a long box which looked like a roll-box for a lecture screen; but things were happening so fast that I didn't attach any significance to it at the moment. I told the man to let me see his arm, and when he did I knew it was a gunshot; and they knew I knew.

" 'You're goin' to fix it, Doc,' the well one said; and he opened the box, which contained a machine gun. I suppose I am not more of a coward than the average man, but I was afraid, desperately afraid, Julian, with a sick feeling at the pit of my stomach. 'I know what you're thinkin',' said the well one. 'You're thinkin' you're goin' to fix it and then report it. Well, you're not goin' to report it. If you do, I'll wipe you off. Understand?'

"Wild thoughts tumble through one's mind at such a time, Julian. I thought of treating it so that he would have trouble, but that wouldn't do. He would return, I felt certain of that, and there were you and Etta to think about. And myself. I thought of myself plenty too! When I finished they looked at it carefully and seemed to realize I had dressed it properly, and then the well one pulled a roll of bills out of his pocket and began stripping them off, wetting his thumb as he did so. 'Here's two thousand bucks, Doc. We're comin' back, and you're goin' to fix him up again. We're payin' you liberal, and we're goin' to treat you right if . . .' And there it was, in a big hard

green roll. I didn't sleep much that night, and I didn't report it. My telephone rang three nights later, and it was the man's friend. He ordered me to come out of my house with my bag and walk down the street until a car picked me up. I did, and we went to a deserted building, and I treated him with the aid of flashlights. Then I was brought back to Railroad Street, in front of the milk plant, and let out.

"That money, Julian! More than I had ever seen at one time in my life. And in my desk. And mine! It began to work on me. I began to think of you. Only an idea at first, if you know what I mean; and then it began to get stronger. The third generation. I saw in the papers that the friend was killed; that removed part of the danger . . . and then today."

The old doctor paused, and a well of emotion rose in him. "If some one had told me a month ago that I would go back on my professional ethics, turn on everything I held sacred, I would have thought he was crazy. And I expect you think I'm crazy too, but there are two sides, Julian. I haven't robbed anybody; and if we get you through medical school, you'll be a great help in the world. That's what we must think of. I see it clearly. Ethically it is wrong. I know that, and you know that, but nobody will suffer. If I tell, Julian, I'm ruined, and you're ruined. No Richey can ever again be a doctor. You understand, don't you? All we have to do is to keep silent. Just us two. We're the only people in the world who know."

Julian wanted to do what his father wished, and certainly what his father said was true. It would be foolish for his father to tell. A picture flashed before him of his father broken by the disgrace, an outcast in his profession, the copper name plate removed from the house, a weary old man dragging himself along the street, speaking to no one, no one speaking to him. But also in Julian were professional ethics grounded in him since he could remember. What should he advise his father?

"I don't know what to say," he told his father. "You must decide for yourself. I can't and I shan't tell . . . ever."

A light of relief came into his father's eyes, and reaching out his wrinkled hand he laid it on Julian's fresh one. "We'll stand together, won't we, Son?"

It was hard to say, but he said it, a disappointment in his heart he had never known before. "Yes, Father, we'll stand together."

The old doctor turned on the water and picked up the hose. But there was a dull heavy feeling in him, a feeling new to him. He paid no attention to the spattering water, for he was thinking. Abruptly he put the squirming hose down and turned off the water.

"I can't go ahead, Julian. Do you know what I see instead of that car? That old copper name plate! It rises up and shuts off everything else."

Mr. Plugman in his shiny car drew up in front of the house and, getting out, came around to the rear.

"I saw the water running down the driveway, so I knew what you were doing," he said. "Julian, were you serious about wanting to come to work for me? That's been in my noodle ever since you spoke about it. Lissen," he urged, "come with me and make some real money. Then you won't have to wash your own car, like some people I know of. I'm always kidding your father about that, ain't I, Doc?"

"I want to ask you one point," said Julian. "Would you be willing to let me work a couple of years and then let me step out?"

"I suppose so. But once you get started makin' money you'll not stop. Such things are natural." A shadow crossed his face. "My son . . . well, he's the gadabout kind. But he'll settle down some day. Just a phase, that's all. Come to my office in the morning, and we'll clean it up, Julian. Get there by 8. There's nothing like startin' the day early. I always have."

After Mr. Plugman was gone, Etta came to the kitchen door. "Come on, folks. I've got the fish fried. Hope you don't get any bones in your throats."

Julian and his father stood looking at each other after Etta had disappeared. "It's still there, Julian, that copper name plate, and it always will be. I worked out what I am going to do while Plugman talked. I'm going to turn the money over to the hospital, a little at a time, so they won't suspect. Then we can be real Richeys, can't we, Son?"

"Yes, Father, real Richeys."

The tie between the child and all adult life is at once the strongest and the gentlest element in human nature. Greater sacrifices are made for children than for ourselves; greater happiness is derived from these sacrifices than from all the triumphs that personal success can bring. Our daily labors, whether in the home, or in the outside world of competition for material things, or even in the search for culture and for spiritual advancement, derive largely from the conscious or unconscious impulse to cherish the child and to hold the child's affection and respect.—*Herbert Hoover.*

This little girl—

can't help being cross. Washing her diapers with ordinary soaps containing harmful alkali has irritated her tender skin. And Mother didn't get rid of all the "diaper odor" either.

This little girl—

is always sweet and happy. Lux for her diapers removes every trace of odor, yet has no harmful alkali to cause chafing. Leaves diapers soft and sweet.

WON'T IRRITATE A BABY'S TENDER SKIN

Physiologic Birth Control

THE RHYTHM
Of Sterility and Fertility in Women

A Discussion of the Physiological, Practical and Ethical Aspects of the Discoveries of Drs. K. Ogino (Japan) and H. Knaus (Austria) Regarding the Periods When Conception is Impossible and When Possible.

By Leo J. Latz, M.D., LL.D.

100th Thousand
$1.00 per copy

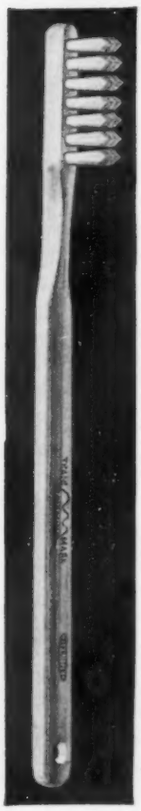
at bookstores or from

LATZ FOUNDATION
1235 Republic Building CHICAGO, ILL.

Write your name and address on a postal card, mail it to us and we will send you our

FREE PAMPHLET

WHEN YOU BRUSH YOUR TEETH



Do you reach both INNER and OUTER Dental Arch?

You may brush your teeth regularly, but if you're using the wrong kind of toothbrush, you're letting many important tooth surfaces go untouched! TAKAMINE Toothbrush, with its small scientific head, reaches ALL tooth surfaces of BOTH the inner and outer dental arch. TAKAMINE is the type recommended by the authority, Dr. W. M. Gardner (Hygeia, Oct. 1934) as best adapted to most effective brushing. Its fine quality bristles have the correct resiliency to remove the formations of acid bacterial masses which cause decay, and to thoroughly massage the gums. It is sterilizable in boiling water (won't distort straight TAKAMINE bamboo handle which helps proper brushing position). TRY A TAKAMINE—and note its difference from ordinary toothbrushes.

SPECIAL OFFER TO HYGEIA READERS—

If your druggist cannot supply you, send 60 cents to us direct for Introductory Package of 6 Takamine Toothbrushes (Regular 75 cents).

TAKAMINE
Corp. : 132 Front St.
NEW YORK CITY

TAKAMINE TOOTHBRUSH DOES!

Of the most absorbing importance to expectant mothers

"A Child is to be Born"

A reprint of the delightful and practical articles in HYGEIA

Diet · Clothing · Exercise
Symptoms · Bathing · Teeth
Sanitation · Layette

15c AN ENCOURAGING AND SYMPATHETIC BOOKLET 15c

American Medical Association
535 N. Dearborn St. Chicago, Illinois

INFANCY: A FRONTIER OF SCIENCE

(Continued from page 506)

This motion picture study of development of the standing posture in infants illustrates the anteroposterior aspect of development found in the growth of the young of the lower organisms. This principle of development is accompanied by a similar process which involves the maturation of nervous structures from the midbrain and medulla down the spinal cord.

But the head-foot or anteroposterior law is not the whole story. For just as there is development down from the midbrain, so there is development forward from the midbrain. This development is by far the most fascinating sector on the frontier of the psychology of infancy, because here one deals with the development of the responses to light, sound, odor and smell and with the higher functions together with the maturation of the cortex, the brain structure that peculiarly marks the human being from all other animals.

A great deal of experimental work has been done on the sensory capacities of infants, but there are also great differences in the results obtained. The sensory development is intimately linked with cortical development. Finally let us discuss this phase of the problem: How early do infants begin to learn? It should be preceded by another question: Can new-born infants learn?

There are some interesting neurologic facts which are pertinent. Attention has been called to the fact that the nervous system matures first in the region of the midbrain and the medulla of the embryo. Anatomic studies show that as late as two months before birth the signs of maturation are absent in the parts of the human brain that lie ahead of the midbrain. They also show that the thin layers over the brain hemispheres, called the cortex, are the last part to develop. Not only is the cortex the last to develop, but it is the most anterior structure of the nervous system. At birth the cortex is poorly developed. Now it is usually held that the cortex is the neural organ concerned in learning. The Pavlov school of brain physiologists in Russia have demonstrated that one aspect of learning, technically called conditioning, depends on the presence of a normal, mature cortex. Professor Krasnogorski, one of the group, has investigated learning in infants. He asserts that learning does not take place until the third month after birth.

Some work which was done by Dr. Hjalmar F. Scoe in the Iowa Child Welfare Research Station on the problem of bladder control in infants seems to verify the Russian observations. But if the human new-born infant is a noncortical organism, the question concerning the ability of new-born infants to learn seems to be answered. However, the problem is not yet settled. At Ohio State University, Dr. Dorothy Postle Marquis repeated Professor Krasnogorski's experiments using his methods with infants under 10 days of age. She reports that she found conditioning taking place about the fifth day of life. If these observations can be verified, a tremendous advance in the field of infant learning may be achieved. Although infants probably learn at an earlier age than has been suspected heretofore, any general, useful learning capacity does not appear before the third month. It is quite possible that this fact may radically revamp the present methods of training infants in some elementary functions such as the control of bowel and bladder, simple manipulation of objects and perhaps even the use of words.

We have made excursions across the frontier of knowledge at several points. It should be remembered that this frontier is a whole line, along which the investigators of infant psychology are pressing forward. Obviously a complete account of the whole endeavor cannot be given. Therefore the description of what is taking place in several important sectors must suffice to show how the investigator works with infants and to give the present status of his results.

The Moro warrior who asks to be vaccinated because he sees his children saved from smallpox, the South Sea Islander who crowds the clinic to experience the miracle of arsenical treatment for yaws, frambesia, probably caused by the Spirocheta pallidula, has from the biologic point of view attained a level of intelligence far beyond that of the silly thousands of our fellow citizens who trust their pseudoconsciences rather than the doctor's brain, their religious creed instead of nature's evidence.

—Haven Emerson, M.D.

Foolhardy people do not prove very hardy, as there is a high mortality among them.

—Safety Education.

START NATION-WIDE DRIVE AGAINST FIREWORKS CASUALTIES

"A situation in which children are killed by the score and injured by the thousands in the act of celebrating the fact that this country is a free and independent democracy calls for immediate correction and cure," declared Alfred E. Smith at the recent conference on fireworks accidents, held in New York. The meeting was held under the auspices of the National Society for the Prevention of Blindness and the American Museum of Safety.

It was suggested that the annual casualty list on the Fourth of July could be cut down by first of all securing the cooperation of the fireworks manufacturers, by carrying on a nation-wide educational program on behalf of a "safe and sane Fourth" and by working collectively for state legislation.

"Our efforts to reduce the accidents resulting from the use of fireworks have heretofore been confined largely to local laws prohibiting their sale, and public warnings as to the danger to life and limb and eyes," Lewis H. Carris, managing director of the society, pointed out.

"We have come to the conclusion, however, that it is as hopeless to try to control Fourth of July ardor by regulating the sale of fireworks at thousands of roadside stands and retail stores as it was to enforce prohibition. The most effective control of the use of fireworks, we feel, lies in restricting their manufacture. This is by no means a one man or one agency job."

The mistaken notion that the nation is enjoying more and more sane celebrations is disproved by the society's report that in New York City alone fireworks casualties in 1934 amounted to 2,600, or 1,500 more than the preceding year.

A comparison of the dead and injured in the American Revolution and the Fourth of July casualties during the past thirty years reveals the following: 4,044 men were killed and 6,004 were wounded in the Revolutionary War; 4,290 persons have died and 96,000 persons have been injured because of Fourth of July celebrations the last thirty years. The last figures do not include the drownings and automobile fatalities which regularly occur on the famous holiday.

A plea that the commemoration of Independence Day by fireworks, firearms and bonfires be sharply discouraged if not discontinued, and in its place an intensive patriotic celebration be developed with athletic events, pageants and other wholesome recreation, was included in a resolution submitted to the conference.

"Fussy" Children Like this Drink....

If your children tire of milk with every meal, why not try alternating with Krim-Ko Chocolate Flavored Drink?

Krim-Ko is chocolate flavored, sweetened, partially defatted milk (added tapioca—salt).

Krim-Ko has the food energy value of standard milk. It is not heavy and gagging. It is rich in calcium so necessary for building sound teeth and bones. It can be served hot or cold, with meals or between meals. Costs less than self-mixed drinks. Best of all—Krim-Ko has that TRUE delicious chocolate flavor that everybody loves. If there is not a dairy in your town that handles Krim-Ko, write to the Krim-Ko Company, 4830 S. Turner Avenue, Chicago, Illinois, and give us the name of your milk dealer.

ACCEPTED AMERICAN MEDICAL ASS'N

KRIM-KO

REG. U.S. PAT. OFF.

•CHOCOLATE FLAVORED DRINK•

DR. THURMAN B. RICE'S

New Booklets on Sex Education

Parents, teachers, physicians—all who need material on sex education for children and young people—will find the help they are seeking in this sane series of booklets by Dr. Thurman B. Rice. He approaches the subject in a way neither ultra modern nor definitely old fashioned, and successfully combines the idealistic with the practical.

THE STORY OF LIFE—for boys and girls of ten years
IN TRAINING—for boys of high school age
HOW LIFE GOES ON AND ON—for girls of high school age
THE AGE OF ROMANCE—for young people of college age
THE VENEREAL DISEASES—for young people of college age

25 cents a copy

The entire set of 5 for $1.00

(Including special filing case)

ORDER FROM

AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street CHICAGO

THE WOMAN ASKS THE DOCTOR

Dr. Emil Novak, gynecologist of long experience and outstanding reputation, has put in an illustrated book of 230 pages the simple sober truth about the things every woman ought to know.

It's a handbook women have waited for, prayed for, actually suffered for: the menstrual cycle; menstrual disorders; "change of life" functions of ovary and womb; cancer in women; truth about the glands; the "safe period"; sex life of women—all in plain, simple, and very clear language.

"Grape-vine" information is misleading and may prove deadly. Woman must know herself.

Merely clip this ad and enclose with your name and address and remittance of $1.50. The book comes under plain wrapper. Or, if you want further information, check below.

☐ Further Information, Please

THE WILLIAMS & WILKINS COMPANY
Publishers of Scientific Books and Periodicals
MT. ROYAL & GUILFORD AVENUES,
Baltimore, U. S. A.

2 NEW NIPPLE SHAPES

One of these 3 shapes will fit your baby's mouth and reduce windsucking. Assures uninterrupted and contented feeding.

Avoid Dirt — This large nipple is safest, as it is easily inverted and cleaned.

HYGEIA
The Safe Nursing Bottle

HEALTH TEACHING PLANS FROM HYGEIA

Teachers, write to Hygeia for a free copy of this 48-page book. It contains 27 projects on health teaching from Dr. Andress' department, "School and Health."

The A.P.-UPLIFT

U. S. Pat. 1,702,922—Invented by Mme. Poix to create the stylish upward contour; to relieve pain and remove cause of many bust troubles; also for pre-natal and nursing periods.

Sizes 30 to 44	
Mercerized Repp	$1.00
Flesh Tussah Silk	1.50
Flesh Mesh	2.00
Flesh Jersey	2.50

If not at dealers, order direct giving exact bust measure next to skin. Booklet free on request.

G. M. POIX, Inc.
103 Madison Ave.
New York, N. Y.

THE DOCTOR'S SCOTLAND YARD

(Continued from page 549)

one puts them together to form the picture, as it were, well, they'll just be fingerprints of disease and no more. See the point?"

"You know, I'm finding out a lot of things," I said. "This is interesting, to me anyway."

"It's too bad a lot more people don't find them out too," said Trebor.

"But I still don't see just where you come in, outside of making these examinations, that is," Carey objected. "Why can't the doctor read his own fingerprint reports? That's his business, isn't it?"

"Yes, it is," replied Trebor. "And often he can. In that case the pathologist's job is ended when he furnishes the reports. Sometimes, however, the doctor does not read in the reports all they have to tell him. Don't forget that this phase of medicine is a specialty and that a man must put a lot of time into it to know much about it. The clinical pathologist has put in that time and, naturally, a laboratory report may mean much more to him than to another doctor who is not a clinical pathologist. Take the x-rays, for instance . . ."

"You know," I interrupted, "I sometimes wonder whether they call them 'x-rays' because it costs not less than a ten-spot every time you get one?"

"Did you ever read 'Alice In Wonderland'?" asked Trebor with a slight twinkle in his eye.

"I may be dumb . . ."

"You are!" the Inspector interjected with a grin.

"I may be somewhat slow of comprehension," I began again with mock dignity.

"Quite often," interrupted Trebor, "but it doesn't matter. You were saying?"

"I am trying to say that I don't see the connection."

"If you read Chapter XI about the trial and the method used to suppress the guinea-pigs you will," he retorted with a wink.

"Take the x-rays," repeated Trebor.

"Did you say anything?" asked Carey with a revolting grin.

"Not a word," I replied cheerfully. "Take 'em!"

"Nearly any one can read an x-ray film showing a broken bone," Trebor continued, "because any one can see the fracture in the picture. But under many circumstances there are shadows and changes in density that can't be read without a lot of study, practice and experience. So, when a doctor has that sort of a picture taken, if he has not had that practice he turns to some one who has. He gets the x-ray man, who is also a physician, by the way, or should be if he is to read films, to interpret the picture and to give an opinion as to what it means.

"Now, when it comes to the interpretation of laboratory reports the same principle often applies. The doctor is often smart enough to know that, while he knows things about some parts of medicine that the clinical pathologist is not in touch with, just so the clinical pathologist knows things about his field with which he himself is not in touch. So, if he is a smart doctor, he takes advantage of the pathologist's training and finds out from him all that the report may have to tell.

"And that," he added, "is the difference between the clinical pathologist and the laboratory technician."

"What are they?" Carey asked.

"The technical assistants in the clinical laboratory," answered Trebor. "They have about the same relation to the pathologist as the office nurse has to the doctor, or that the draughtsman has to the architect. They have the technical training necessary to enable them to carry out the laboratory tests and procedures; but, not being physicians, they are not prepared to apply the results to the study of disease."

"Aren't we getting away from the crime and disease idea?" I asked.

"Not at all," said Trebor. "The Inspector has his patrolmen and precinct special officers to do his routine for him. Why shouldn't the pathologist have his technicians? And there's another thing: it's up to Carey to map out the way the investigation is to be carried on. Frequently the doctor who gets the most information from the laboratory is the one who puts the problem up to the pathologist and says, 'Now, what is the best way to use the laboratory in this problem? What information can we get from it, and what is the best way of getting it?'

"You see, Carey? That's where the business of practicing medicine comes in."

"I get you," answered Carey. "You're the home office expert, so to speak, of this Doctor's Scotland Yard."

"Exactly!" grinned Trebor. "You know, that's a darn good name for a clinical laboratory, at that."

"What else do you do?" I inquired.

"Oh, there is a lot more to it," replied Trebor, "but we need not go into details. I think I've given you the main idea. You know, the

most important thing is not merely making these examinations or having them made. The big job is picking out the right kind of examinations to make. For instance, suppose one of your men, Inspector, put in a lot of time making fingerprints when what was really needed to 'break the case' was a plaster cast of a footprint."

"I'd break him!" growled Carey. "He'd belong back on a beat, and he'd go there!"

"I'll bet he would," said Trebor. "Well, suppose the clinical laboratory made a whole collection of examinations but left out the one that would 'break the case'; that is, the one that would be of the most assistance toward making a diagnosis? And sometimes it is left out, simply because the doctor doesn't happen to think of it or to realize its real value at the time, or sometimes because he doesn't know that there is such an examination. Because, you see, he is not a clinical pathologist, and consequently he is not as apt to be as closely in touch with all the developments of this field as he would be with those of his own. Take yourself, now, for example. You might not be as good on the burglary squad as you are in the homicide bureau, for you are not with burglaries all the time."

"You know," said Carey. "Darned if you don't make this thing interesting. I wouldn't mind seeing it work."

"I don't make it interesting," smiled Trebor; "it is interesting! If you like, some night when we have nothing better to do I'll tell you about some cases that the clinical laboratory helped to work out. And I really believe I can make them at least as interesting as some of the tripe you turn out," he added, with a wink at me.

"They'd better be good," I grinned back at him.

"Well, of course," he laughed, "I won't be able to tell them as you do. I'll stick to the truth, for one thing."

"Can we depend on that?" I murmured.

"Well, if you insist," he replied, "I can give you reference and page for every case I cite."

"Just so they don't sound like some of the autopsy reports we get from the medical examiner's office," grunted Carey.

"I'll try to make them a little less technical and a little more interesting than that," said Trebor. "You know, I've listened to enough of this chap's stories in the making," pointing to me with his pipe, "to have learned a trick or two. Let's see, how is this for the first try: 'The Case of the Gloomy Babies'?"

"I hope Carey and I won't be a couple of gloomy babies after we hear it," said I.

"When does this happen?" asked Carey. "I'd like to hear it."

"If nothing happens, tomorrow night," replied Trebor. "Suit you?"

"I'll be here," said Carey.

"Suits me," I added. "Tomorrow night, ladies and gentlemen! World premiere showing of 'The Case of the Gloomy Babies!' "

(To be continued)

BREATHING GYMNASTICS MAY BE HARMFUL IN PULMONARY DISEASE

Many people still believe in the magic power of breathing exercises. Yet those who have lung diseases and are interested especially in gymnastics of this type should be the last to resort to their use, according to an article in *Scholastic Coach.*

People with tuberculosis may do much harm by practicing vigorous lung gymnastics, especially when they are combined with a brisk slapping on the chest in order "to inflate some idle alveoli." A rupture of the lung may be the reward for such heroic practice.

The most important function of the respiratory center is the adjustment of the respiration to the change in muscular activity. During exercise, carbon dioxide is produced in a greater quantity and exceeds the normal level. The respiratory center responds with faster respiration until the excess has been removed.

One deep breath is more efficient than several shallow ones, although the amount of air inhaled in the two cases may be equal.

The key to the world of the future and to the wise fraternity of all races lies in the liberation of the child from the bondage of others' error and sin; from disease and debility, from desertion and want, from ignorance and passion above all, that are visited upon the helpless to the third and fourth generation. The heart of a child is friendly to all; like the baby of Della Robbia its limbs are bound but its arms go out to its fellows. Its single claim is to be allowed to love; its one revenge is to die if, for an hour, we neglect it.

—Romain Rolland.

Children and utter ignorance of children can occupy the same place at the same time.

—Dr. George D. Stoddard.

ACCEPTED AMERICAN MEDICAL ASSN.

Look for this Seal When You Buy

IMPORTANT TO MOTHERS

The Committee on Foods of the American Medical Association has accepted Heinz Strained Foods and passed on all advertising claims made in their behalf.

Don't

FOOL YOURSELF ABOUT BABY'S *Vitamins*

Even home-cooked strained vegetables often have a lower vitamin retention than Heinz Strained Foods

If you cook and strain the vegetables your baby eats, here is important news. With ordinary home methods it is often impossible to retain as high a degree of vitamin and mineral content as is found in Heinz Strained Foods.

When you feed your baby these foods from the immaculate Heinz kitchens you free yourself from the time and work of cooking and straining—but, more important, you assure him a uniformly abundant quota of the precious nutrients he needs.

HEINZ STRAINED FOODS *for Baby*

9 KINDS—1. Strained Vegetable Soup. 2. Peas. 3. Green Beans. 4. Spinach. 5. Carrots. 6. Tomatoes. 7. Beets. 8. Prunes. 9. Cereal.

GET THIS BABY DIET BOOK

The new book *"Modern Guardians of Your Baby's Health"*, contains many up-to-date facts regarding the various vitamins and mineral salts. Also information on infant care and feeding. Send labels from 3 tins of Heinz Strained Foods and 10 cents. Address H. J. Heinz Company, Dept. H206, Pittsburgh, Pa.

57

DISEASE GERMS VARY IN METHODS OF ATTACK ON BODY

The several ways in which disease germs enter and leave the body are described in a weekly health message of the U. S. Public Health Service, in cooperation with the Iowa state department of health.

Measles and scarlet fever are well known examples of the group of respiratory diseases caused by certain microbes which enter with the breath and are later expelled by coughing, sneezing and talking. Other organisms, such as those of typhoid, are swallowed with contaminated water, milk or other food. Typhoid bacilli find their exit with the bodily discharges.

The germs of syphilis and gonorrhea enter and exit, as a rule, through the genital orifices.

Some disease agents enter the body through the skin, causing tetanus or lockjaw as a result of wounds. Skin abrasions may result in invasion of the germs which cause undulant fever or those which cause rabbit disease, or tularemia. Undulant fever may be acquired also from dairy products which lack safeguards. The bite of an infected mosquito has been discovered to be the cause of malarial fever.

SIGHT-SAVING COURSES

Courses for the training of teachers and supervisors of sight-saving classes will be offered at the 1935 summer sessions of the following schools: Western Reserve University, Cleveland, from June 24 to August 2; State Teachers College, Buffalo, from July 1 to August 9, and the Teachers College of Columbia University, New York City, from July 8 to August 16.

Details regarding the courses may be obtained either from the schools or from the directors in charge of the respective courses, who are as follows: Olive S. Peck, supervisor of sight-saving classes of northern Ohio, board of education, Cleveland; Matie M. Carter, supervisor of sight-saving classes, state education department, Albany, N. Y., and Winifred Hathaway, associate director, National Society for the Prevention of Blindness, 50 West 50th Street, New York City.

The most important quality of education is flexibility. Flexibility is allied to play. Play is the essence of adaptability, and there is no prescribed pattern for it. Opportunities must be used as they come along.—*Boyd H. Bode.*

Schools and Camps

Schools for Exceptional Children

WILSON SCHOOLS
For exceptional children of all ages. Large residences. Fine appointments. College trained experienced teachers only. Individual instruction. SPEECH CORRECTION. Preschool, grades, state accredited high school.
La Verne A. Wilson, Pres., 7 Arnold Place, Dayton, O.

Beverly Farm, Inc. Home and school for nervous and backward children and adults. Successful social and educational adjustments. Occupational therapy. Dept. for birth injury cases. Healthfully situated on 220-acre tract, 1 hr. from St. Louis. 7 well-equipped buildings, gymnasium. 37th year. Catalog. Groves Blake Smith, M.D., Supt., Box H, Godfrey, Ill.

DEVEREUX PINES, North Anson, Maine
Separate recreational camps for boys and girls whose progress has been retarded. Summer Session of Devereux Tutoring Schools. Complete equipment. Devereux Farms for older boys. Catalogues: Helena Devereux Fentress, Director, Box A, Berwyn, Pa.

<> TROWBRIDGE TRAINING SCHOOL <>
Home school for nervous, backward children. *Best in the West.* Beautiful buildings. Spacious grounds. Experienced teachers. Individual supervision. Resident physician. Enrolment limited. Endorsed by physicians, educators. Booklet. E. Haydn Trowbridge, M.D., 1810 Bryant Bldg., Kansas City, Mo.

The NEW DAVIDSON No-Colic SCREW-ON Nipple PATENTED

You and your patients will like it! Easy to put on, take off; with a twist of the fingers, even in the dark! Fingers never touch inside of nipple or neck of bottle. Baby can't get it off. Can't collapse; endures repeated sterilizing. At leading drug stores; nipples, 10c each, 3 for 25c; bottles, 5c. Write for professional sample nipple and bottle.
Davidson Rubber Company
Est. 1857 Boston, Mass.

The SEX TECHNIQUE IN MARRIAGE • By I. E. Hutton, M.D.

"Dr. Ira Wile describes the book as a clear, succinct, non-emotional, authoritative and conservative exposition of the practical factors involved in making marriage successful on the sexual level. That describes the book exactly . . . It is primarily concerned with the conduct of the honeymoon and with the technic of the sexual performance." —Hygeia.
Acclaimed by the Medical Press Everywhere
At bookstores or direct from Price $2.00
EMERSON BOOKS, Dept. 118, 333 Sixth Ave., N. Y. C.

Excellent—LUCKY BREAKFAST FOOD—Nutritious
A FARINA—made from the CREAMY part of the WHEAT with FINE BRAN added.
For CHILDREN—Contains 0.7 per cent crude fiber which helps to counteract constipation due to insufficient bulk in the diet.
For ADULTS—Contains considerably more calories, weight for weight, than are found in eggs, white or whole wheat bread.
Accepted by American Medical Ass'n, Committee on Foods
FEDERAL MILL, INC., 400 Race St., Lockport, N.Y.

REST IS NATURE'S METHOD OF FIGHTING AGAINST TUBERCULOSIS

"If you are put to bed and told to lie quietly for a long period of time you must make up your mind that you are going to become lazy and like it," reads an article in the *SoCaSan Piper.*

Why is rest so important? The answer is that rest is the only means left, after all others have been exhausted, which truthfully aids nature in arresting the tuberculosis process that exists in a patient's lungs. It is with regret that the doctor admits he cannot give the patient something by mouth or under the skin which would heal the lungs.

By physical rest is meant absolute body relaxation in bed with the minimum amount of exertion. The reason even a small amount of body movement is harmful is that with each motion there is an increase in the number of times the lungs expand, an increase and a decrease in the amount of air that one inhales, and a disturbance and irritation of the lung elements which are trying to ward off the onslaughts of the invading organism.

"I am reminded at times of some occasions when I had to practice as a boy on the violin," the writer says. "I used to watch the clock and the minute my time was up I quit. Some patients rest in that fashion. It's wrong. Time is a negative factor in the cure of tuberculosis; that is, you cannot state that in so many hours or so many days a person will get well. Time is only important in that it takes a lot of it to get results."

Mary had a little cold, but wouldn't stay at home,
And everywhere that Mary went, the cold was sure to roam;
It wandered into Molly's eyes and filled them full of tears,
It jumped from there to Bobby's nose, and thence to Jimmie's ears.
It painted Anna's throat bright red, and swelled poor Jennie's head,
Dora had a fever, and a cough put Jack to bed.
The moral of this little tale is very quickly said—
She could have saved a lot of pain with just one day in bed!

—*Lucy Thibault* in the *Arkansas Democrat.*

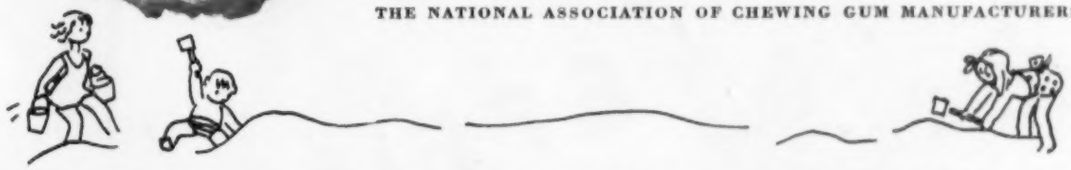
Science and art offer nothing of value, strength is incapable of effort, wealth is useless, and eloquence is powerless, if health be wanting.

—*Herophilus.*

From early childhood through school days, natural play is important—

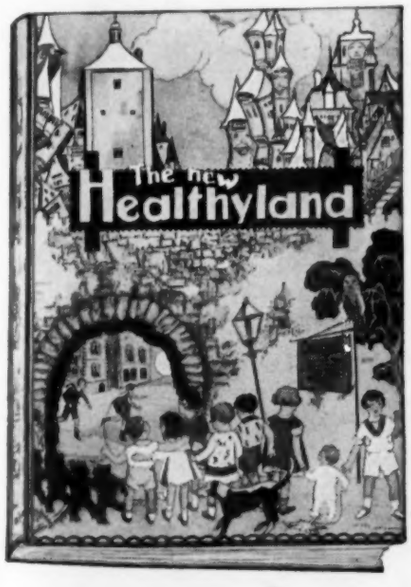
Many dentists call chewing gum the "natural play" which strengthens gums, helps keep teeth in good condition and aids in Mouth Health. Deciduous and young permanent teeth need to be given plenty of chewing to do. There is a reason, a time and place for Chewing Gum.

THE NATIONAL ASSOCIATION OF CHEWING GUM MANUFACTURERS



4 FACTORS THAT HELP TEETH LAST A LIFETIME: PROPER NUTRITION, PERSONAL CARE, DENTAL CARE AND PLENTY OF CHEWING EXERCISE

P-1167



Was $2—Now Only $1

Price Reduced One-Half to Close Out Stock

HEALTHYLAND

This beautiful big story book, made up of the popular health material for children that has appeared in HYGEIA, has delighted thousands of children. And it has taught them the lessons of health in an enchanting way.

Only a few hundred copies remain, and in order to close them out at once the price has been cut exactly in half. The book is just as entertaining and appealing as ever. And it is a great bargain at this low price!

A Big Colorful Book Children Love

The 168 large size pages of this book are filled with fascinating pictures, many of them in gay colors. Printed in large type, easy to read, are delightful health stories, verses, and health plays that children can give. There are also interesting letters from children in seven foreign countries telling about their various health customs.

Take advantage of this special price and get several copies of HEALTHYLAND now for gifts. The book would be delightful for any child—your own or some one else's whom you wish to remember on birthdays. But order *now!* At this special low price the limited supply will not last long.

AMERICAN MEDICAL ASSOCIATION
535 North Dearborn Street, Chicago

AMERICAN MEDICAL ASSOCIATION H-6-35
535 North Dearborn Street, Chicago.

I am enclosing $..... for ..... copies of the NEW HEALTHYLAND at $1.00 a copy.

Name.....

Address.....

.....

Try this test with Nonspi—put a drop on the back of your hand and see it spread quickly and cover thoroughly...That means efficiency in checking perspiration and preventing its odor...Try the easy, sanitary applicator. No waste; no running; nothing to contaminate the contents of the bottle...That means sanitary efficiency in application, and economy too...Try Nonspi. See if you do not like it better in many ways for its all-round efficiency as a *safe* deodorant and anti-perspirant. Good grooming demands the use of Nonspi the year-round.

NONSPI

the safe deodorant with the new *sanitary applicator*

THE NONSPI COMPANY, 113 West 18th Street, New York City